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PART FIRST.

ORIGINAL COMMUNICATIONS.

ART. I.—*History of the Compressed Sponge as a remedial Agent for the Treatment of Strictures of the Rectum, Urethra, etc., also of Morbid Growths and other Affections.* By J. P. BATCHELDER, M.D., late President of the New York Academy of Medicine.

MR. EDITOR: In the following articles it is proposed to lay before the readers of your Journal the results chiefly of my personal experience in regard to the use of the compressed Sponge in the treatment of various diseases.

Prior to its employment in this way the sponge had been used merely as a styptic, for the stanching of blood. For this purpose it was first recommended by Celsus, who directed that "after the wound had been filled with dry lint, a sponge dipped in cold water be applied over the lint and pressed upon the part with the hand." This, I believe is the first announcement of the true principle (compression) upon which the permanent suppression of hemorrhage depends; and also the first mention of the sponge as a remedial agent in the hand of surgery.

From the time of Celsus to the publication of "Bloomfield's Surgery," in 1763, I have not been able to find it alluded to by any writer.*

Bloomfield, after speaking of agaric for stopping hemorrhage alludes to the sponge, for the same purpose; and subsequently refers to it as having been recommended by his friend Mr. Charles White of Manchester, who, he says, has "made use

* Since writing the above, I have discovered that I was mistaken, as will be noticed in another place.

of it with success in restraining blood in amputations when the largest arteries have been divided;" but he himself does not appear to place much reliance on it when "an artery of any considerable size is wounded." "Some people," he tells us, "have said that the sponge will not do more than dry lint; he would try it when he could not get at the vessel, to surround it with a ligature. The larger the artery, the less likely is the sponge to succeed, especially when the vessel is so situated that a tourniquet cannot be applied to stop the hemorrhage, till the sponge can gain attachment." The foregoing remarks by Celsus and White, relate to the common sponge, employed in the usual way; but the observations which we are about to submit, refer to it as prepared and used in a certain manner, for particular purposes; but in this essay we propose to speak of the article as simply flattened, or moulded into the form of a tent by compression, and used for the attainment of special objects.

Pieces of fine soft live sponge should be selected and freed from all extraneous substances, as sand, shells, fragments of stone, etc., washed and thoroughly dried,* and subjected to pressure.

For this purpose, I am in the habit of employing the common copying letter press; but a much less expensive apparatus, as a piece of board with a weight, or even a large stone, may be resorted to and will effect the object very well, especially when a fresh application is to be made daily; in which case the sponge should go directly from the press to the diseased part.† When the surgeon desires to have the compressed sponge at all times ready for any and every emergency, he will do well to keep it weeks or even months, subject to the compressing power—otherwise it will again expand in consequence of the facility with which it absorbs moisture from the atmosphere.

THE TENT.

Method of preparing.—The other modification of the compressed sponge which we propose to consider, is that of the tent. Those prepared in the old way, with wax, we have not used for many years (indeed scarcely ever); but those which we have been in the habit of using have been prepared in one of two ways. 1. By winding a piece of clean, fine sponge well moistened with water, with a thread or small cord and letting it remain till thoroughly dry, when it will be fit for use on the removal of the thread. 2. By saturating a piece of

* This is essential, for if the sponge be not made quite dry, the compression will be incomplete.

† In such instances, placing the sponge beneath a piece of board upon which the post of a mahogany bedstead rests, will answer.

sponge with a solution of gum arabic, weak or strong, according to the particular use which is to be made of the tent, and then winding it with a small cord, as fine pack-thread, which is to be removed when dry, and the tent made smooth with a sharp knife, and adapted in size and shape to the use which is to be made of it. It should always be prepared with the mucilage when designed for dilating the canal of the cervix uteri; or to be used in any other part where moisture might occasion premature expansion, *i. e.*, before it can be properly inserted; also when it is desirable to avoid rapid dilatation, which sometimes causes considerable pain or uneasiness. When the tent can be introduced with facility, the mucilage should be dispensed with. To facilitate the winding, the piece of sponge should be transfixed with an awl, which must be removed as soon as the winding is finished. When the tent is to be used for dilating the canal of the cervix uteri, or a stricture of the rectum, or in any other internal part from which it is to be withdrawn, it will be expedient, before winding, to carry a needle armed with a strong thread through the centre of the piece, from base to apex, and back. These free portions of the thread twisted together will form a cord sufficiently strong for retraction.

We now proceed to consider the several uses to which the compressed sponge, in one form or another, may be applied for the cure of disease—especially the removal of morbid growths. With the efficacy of pressure in removing the various structures of the body—even the most dense and solid of which it is composed, as bones, cartilages, etc., all are familiarly acquainted. The surgeon often resorts to pressure, and is not unfrequently foiled in accomplishing his object for want of an appropriate medium through which the application can be made in a manner which will be tolerated by the part to which it is applied. The removal of even solid parts by the pressure of tumors, as in the case of aneurisms, suggested to the writer the idea of employing the sponge, particularly if its efficiency were increased, as it probably might be if compressed by the firm application of a bandage and subsequently imbued with water. After some little experience the thought occurred to me that if the sponge were compressed previous to being bound upon the part, and afterward saturated with water, its expansive power would be greatly increased, while at the same time it would become so softened that its influence would be very analogous to that of the tumors alluded to. The conception formed, the trial was not long delayed, by which the correctness of the theory was established, beyond a doubt. This method was first adopted and carried out in the treatment of

enlargements of the female mammæ, and was soon after extended to that of mammary abscesses—particularly if chronic or subacute.

Having been so well and truly described in Art. VI. of the *N. Y. Journal of Medicine*, published September, 1857, particularly in the "report of fourteen cases of mammary abscess treated with the compressed sponge (Dr. Foster's method), by John G. Johnson, M.D., house surgeon to Bellevue Hospital;" * and by the report of cases published by Dr. S. Conant Foster, late physician to the Bellevue Hospital, and by Dr. W. C. Roberts, both of this city, I shall omit the detail of my own practice in many cases.

His (Dr. Johnson's) method of preparing and applying the sponge is identical with that which I had repeatedly described at the Bellevue Hospital several years prior to his connection therewith. As I cannot do better, I shall transcribe the description published by him in the number of the *N. Y. Journal of Medicine*, before mentioned.

"METHOD OF TREATMENT.—The softest pieces of sponge should be selected, each piece being large enough to cover the entire breast. The sponge should be carefully washed to remove any gravel, shells, etc., it may contain; and when thoroughly dried it is to be compressed for a long time under a heavy weight, or between the lips of an ordinary carpenter's vice. The sponge, when thoroughly pressed, should be bound as firmly to the breast as the patient will allow, by means of a bandage passing several times around the body above and below the other breast, a piece of lint being placed between the breast and the sponge [I often omit this interposition], to prevent the latter from irritating. It is then to be soaked with cold water, and the bandage preventing the sponge from expanding outward, its expansion makes the desired pressure upon the breast.† The patient usually complains of pain for ten or fifteen minutes after the application. The temperature of the water-dressing is soon raised to that of the body, and thus we

* Dr. Johnson, in his report of the "fourteen cases," omitted to give the writer credit for the introduction of the remedy (compressed sponge), which he employed in those cases with such signal success. Of the fact that the practice had originated with the writer, Dr. Johnson was undoubtedly not aware; for he tells us that "the following plan of treatment was directed by Dr. Stephen Smith, visiting surgeon to the hospital in a case (case 1) of mammary abscess which had long been under treatment in the surgical division, but which had thus far remained intractable."

† When it can be borne, the pressure may be increased or even intensified by adding a few turns of a roller made of the india-rubber cloth. This mode of bandaging will be again adverted to when we come to treat of the scirrous breast.—B.

have the essential elements of a poultice—heat and moisture—without the inconvenience of an ordinary poultice. This soft, yet firm compression adapts itself evenly and equally to the whole breast; the sponges are to be kept wet during the whole time of their application. The patient soon becomes accustomed to them, and the alleviation of the suffering is so great as to cause her to request the continuance of the treatment. The sponges should be renewed daily."

In addition to the treatment of this class of affections, so ably and justly described by Drs. Foster and Johnson, I will take the liberty to refer the reader to a letter from my friend Dr. W. C. Roberts, on the several and various uses of the compressed sponge, published in the November number of the *N. Y. Journal of Medicine*, for 1857. My own experience of its utility, in most, if not all cases analogous to those related by him, accords well with his.

OF THE USES TO WHICH THE COMPRESSED SPONGE, IN THE TENT FORM, MAY BE APPLIED.

1. *Dilatation of the canal of the cervix uteri, in cases of sterility; difficult menstruation, and for the relief of other affections of the part or organ.*—Prepared as directed with the mucilage of gum arabic, the tent, guided by the finger, may be introduced by the help of a pair of long-bladed forceps, or by being fixed upon the end of a small, round, and slightly curved stilet, about 12 inches long, whose end on which the tent is fixed should be reduced to a point—with a shoulder about five-eighths of an inch from the extremity. The portion between the point and the shoulder should be small enough to be received into the base of the tent and long enough to keep it steady when being introduced; while the shoulder enables the operator to push it home without injuring, or in any way whatever endangering the part. Upon this pointed portion, the tent may be fixed preparatory to its introduction, which is sometimes difficult, or at first impossible on account of the smallness of the cervical canal. In such cases we commence the dilating process by introducing fine metallic dilators, successively, and increased in size, until a small tent can be passed,* which must be followed, day after day, by others, large as can be introduced, until the dilatation is accomplished, which in some cases a few

* These dilators should be about one inch and a quarter long, and have a thread a foot and a half long attached to them, by which they may be fastened to the clothes of the patient, to prevent their being dropped or lost. Although there is seldom any danger that the tent, like the dilator, will escape, it may be well in some instances, perhaps in all, to secure it in much the same way.

days only, and in others, weeks will be required to effect. When the tent is introduced by the aid of the stilet as described, its dislodgment from the stilet and lodgment in the canal of the cervix uteri may be effected by pressing upon its base with the point of the finger which guides it to its place of destination, and will keep it there while the stilet is being withdrawn. Occasionally it is quite convenient, and even necessary, to have recourse to the speculum:—when the long-bladed forceps will be essential to the introduction of the tent, which should not be allowed to remain longer than twenty or twenty-four hours at the longest, on account of the temperature of the part rendering the retained secretions irritating and offensive. On the removal of a tent, the vagina should be thoroughly syringed with cold or tepid water—also, it will be well to do the same just before a tent is introduced. Between these operations it may be expedient in some cases to let a day or two intervene; but it is best to avoid this as it delays the cure. If it be the design of the practitioner to induce premature labor, the tents should be continuously applied; or when a tent is fully expanded, it should be removed and another of larger dimensions introduced.*

2. *Dilatation of sinuses.*—These may be dilated to any desirable extent, by means of the sponge tent; and most of them, sooner or later, healed by simply promoting the free discharge of matter—the want of which being the principal cause of their not healing. As this process of dilatation is going on, the tent, from day to day, should be lengthened as well as enlarged. The action of the sponge has a favorable influence in changing the texture of the part lining the fistula, which, in cases of long standing, is supposed to take on the nature of a mucous membrane.

3. *Fistula in ano.*—Many cases of this affection may be cured by the use of the sponge tent, without an operation; which is not always free from danger, and therefore to be

* In cases of pregnancy attended with hemorrhage, we sometimes find on examination, the os partly open, but inflamed, or indurated and unyielding—not dilating so as to allow the embryo, placenta and membranes to pass in cases of abortion. There may indeed be slight parturient pains, but not sufficiently strong to force the contents of the uterus through the refractory cervix. What shall be done? We answer: Insert a sponge tent large enough to fill the canal—which will not only constitute the very best possible tampon, but dilate the passage, bring on or increase the uterine pains, and cause the contents of the uterus to be expelled; or, if this result should not follow—it will have so far dilated the canal as to allow the practitioner to pass an appropriate instrument (either long-bladed forceps, or a properly constructed small lever), by which the ovum, or placenta and membranes, may be effectually and safely removed. The introduction of the sponge tent, we repeat, not only stops the flooding, but induces labor pains, and also prepares the outlet for the passage of the uterine contents.

avoided when a safer method promises to be successful. An abscess not unfrequently forms in the neighborhood of the anus, the discharge from which is not always mingled with fecal matter. Before an opening into the intestine occurs, the septum between it and the cavity of the abscess, becomes very thin—a mere membrane; still no communication between them is to be found, and none, as Mr. Syme justly observes, occurs while the external orifice remains freely open; but when it becomes so nearly closed as to prevent the ready discharge of the matter—which will not only continue to burrow in various directions in the cellular substance about the rectum and also along the perineum, but by the occasional or constant pressure of fecal matter within, and pus without, on this septum—it ulcerates or is absorbed, and we have what surgeons term a complete *fistula in ano.* Now, if soon after the bursting or opening of the abscess, a sponge tent be fairly and fully inserted, it will not only absorb the matter, and prevent its burrowing or pressing upon the septum, but secure it a free and ready exit, by keeping the external orifice patent. By this treatment an opening into the gut is prevented, and the sore heals from the bottom like an abscess in any other part. That the communication between the abscess and the intestine does sometimes exist prior to the external opening, is true, as every practical surgeon well knows, but in many cases (a majority according to my experience) the external opening takes place first; and that flatus and fecal matter are not discharged from it for some time, or not until it has begun to close—when nature, to relieve herself, perforates the septum. Had the sponge tent been used at first, the perforation would not have happened—the external opening would have been kept free, and the abscess have healed without further trouble.

This use of the sponge tent is peculiarly appropriate, when a fistulous passage leads to a diseased bone. In the course of a week or fortnight, I have in such cases dilated the sinus, so as to be able to place my thumb and three or four fingers directly upon the diseased bone, and remove the sequestrum, if one existed; or, if there was caries, to remove the diseased portion of bone by the repeated application of the compressed sponge.

Now, caries is an ulceration of the bone, which in some respects resembles cancer of the soft parts. In this disease the relative proportions between earthy and animal matter entering into the composition of the bone seem to be disturbed. In some cases the animal matter, or vascular portion, exceeds the earthy, and then we may have decaying bone with fungous bleeding masses. In others the earthy matter may predominate, and produce irritation, or cause exfoliation. Nature's method of

cure, particularly in the last instance, is to get rid of the earthy matter, either by solution and absorption, or by wholly depriving it of its vitality, when we have exfoliation or necrosis. The reason why caries is so tedious and difficult of cure, is, that the earthy matter, partially or wholly deprived of vitality, keeps up a constant irritation, which prevents a portion in the immediate vicinity from being duly nourished. Nature, as suggested, causes the death of the diseased morbid portions, and then throws them off. The surgeon for the same purpose applies the actual cautery, as recommended by Boyer; or the gouge and chisel; but the action of the sponge is less dangerous, painful, or repulsive, and more certain.

In 1822, I discovered this action of the compressed sponge upon diseased bone by accident.

Visiting a patient at a distance from my home, I was asked by a gentleman to see a poor boy about ten or twelve years old who had been affected with a fever sore, as cases of necrosis were usually termed at that time in New England. The disease was located in the lower third of the femur, near the knee. Diseased bone was felt at the bottom of the sinus. As I had not with me suitable instruments for an operation, I directed and showed the parents how to prepare and use the sponge tent; saying that I should be again in that neighborhood in the course of ten days or a fortnight, and would then perform the appropriate operation; until then they might use the tent as directed. They followed the direction to the letter; but as fortune would have it, I did not happen that way, during the three or four succeeding weeks, when I found an opening about an inch and three quarters in its longest diameter, and one inch in its shortest leading directly down to the bone, the exposed surface of which wore a red, healthy, granulating appearance. Instead of an operation, the sponge was directed to be laid aside, and dry lint substituted, with which the sore was to be daily dressed until healed, which occurred in a few weeks. Since that time I have continued to treat caries of the bones in this way, and have seldom been disappointed in the result. It is but just, however, to say that some few cases have resisted this mode of treatment. Notwithstanding, it has been with me the established rule of practice.*

In November, 1853, I was called to visit a little girl about four

* I have seen cases of necrosis of long standing, in which the sequestrum had by its irritation induced caries of the newly formed bone which continued after the removal of the sequestrum by an operation; and in one instance the patient lost his leg from this cause. When I have removed the sequestrum and found the new bone diseased, I have invariably succeeded in effecting a complete cure by the use of the compressed sponge—commencing it immediately after the operation.

years old, who had a small tumor on the inside of the left tibia, just below the tubercle, which appeared some months before. Its precise nature was not apparent. It had been attended with very little pain or uneasiness, and was not tender to the touch. Various discutients had been tried without success. It contained a fluid which was discharged through a tolerably free opening, made with a bistoury. The probe detected a sinus which extended downward from the centre of the collection about an inch, or a little more. Various attempts to heal the sinus were made, which proved fruitless; at length the probe detected a small extent of denuded bone. The precise nature of the case was not, however made out. It was at first suspected that the external affection of the bone might communicate with some deeper seated mischief, as an abscess within the medullary cavity; but no passage leading to such abscess could be found; and as the progress of the disease had been so slow, and attended with so little pain, that idea was given up, and dilatation of the sinus with the sponge tent was determined on, and the process immediately commenced. The child was very unmanageable, but the attempt was completely successful. The sinus was dilated so as to admit the end of the finger, and soon the whole diseased surface of the bone was exposed, to which a fresh piece of compressed sponge was applied every morning, and confined there by means of a compress and bandage. In a short time this diseased surface of the bone assumed a red, healthy, granulating appearance, when it was deemed advisable by Dr. Mott, who visited the little patient in consultation with me, to lay aside the sponge, and allow the wound to heal, as there was much reason to suppose it would do in a short time; but in this we were disappointed, and an injection of the muriatic acid, properly diluted, was employed. This course was pursued for some time without any apparent benefit—the naked bone over which the sinus had nearly closed, could still be felt with the probe. The tent and compressed sponge were again put in requisition, and as soon as the sore at the bottom reassumed a healthy, granulating appearance, the sponge was omitted, and the ulcer soon began to heal, and finally closed, and had remained well up to the time (two years after) when I last examined the limb, and judging from the indented appearance of the cicatrix, and its firm connection with the bone beneath, there is no reason to question or doubt the permanency of the cure. As this child was evidently tainted with a hereditary strumous diathesis, we were greatly alarmed during the healing of this sore, particularly towards the latter part of it, at a commencing enlargement of the femur, occupying the whole of its

lower third. There were no signs of inflammation—no tenderness—no pain or uneasiness; indeed, the child ran about and played, as if nothing was the matter. Her health otherwise appeared quite good. The mother, who at first seemed rather averse to the application of the compressed sponge, now, becoming alarmed, consented, and a few pieces were applied which covered each condyle, and extended up the limb co-extensively with the swelling. Fresh pieces were bound on with a tight bandage, every morning before she left her bed,* and made thoroughly wet, and kept so during the day, and as much of the night as was convenient. In less than a fortnight, a diminution of the swelling was apparent, and in six weeks from the first application the limb was reduced to the same size as the other, although when the treatment commenced it was more than a third larger, by actual admeasurement, than its congener. The dressing was now laid aside, and both the tibia and femur have remained sound and well. This child, as has been stated, is of an highly scrofulous diathesis, and has been, since the cure above-mentioned, several times affected with strumous ophthalmia and ulcers of the cornea, with repeated abscesses and discharges from the ears, but was when last seen, about two years ago, enjoying tolerably robust health.† Several other cases of enlarged femur, successfully treated in this way, might be adduced, but we hope what has been said will be sufficient to induce gentlemen to give it a trial in similar affections—particularly in syphilitic nodes. We have seen it disperse one on the upper and lateral part of the os frontis, half as large as a hen's egg, in a fortnight, and one a full half-inch thick, which extended like a splint some five or six inches along the tibia, by the same application—the compressed sponge and roller, in less than a month. It is true that in these cases the hydriodate of potash and cor. sublimate were taken internally at the same time.‡ We have not, in fact, seen a single failure.

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* It is hardly necessary to say that the limb, from the toes to the knee, was likewise firmly bandaged.

† These affections of the eye and ear were always on the same side of the body as were the limbs affected. I have not very unfrequently noticed this fact, which I do not recollect to have seen mentioned in any of our books.

‡ Of late I have combined the muriate of ammonia with the hydriodate of potash, which, it has seemed to me, nearly doubles its efficacy. The following is the formula I am most in the habit of prescribing:

℞ Hydriodate of Potash,
Muriate of Ammonia, aa. ʒ ij.
Cor. Sublimate, grs. 2, (more or less, according to the circumstances of the case,
Syr. Tolu, Syr. Ginger, aa. ℥ ij, mix.

Dose—A teaspoonful an hour and a half after each meal. This has certainly been, in my hands, a most effectual remedy for all the tertiary, and, indeed, most

4. *Dilatation of the meatus auditorius.*—The sponge tent may be applied as suggested by Dr. Roberts for the dilatation of the meatus auditorius, when contracted by extraneously deposited matter—the occasional result of ulceration. For the treatment of these cases, the tent, or even a small piece of very soft compressed sponge, will answer, which not only absorbs the matter and dilates the passage, but to a certain degree produces a favorable change in the diseased parts with which it comes in contact. It should be introduced gently and deeply —in fact, to the bottom of the meatus. It may, in some cases, be convenient to have it transfixed with a thread to facilitate its removal.

5. *Nasal cavities and bones.*—In ulcerations and disease of the nasal cavities and bones, it may be occasionally used with advantage. It should be introduced into one nostril only at a time; here considerable tact is required in its management.

6. *Dilatation of strictures.*—For dilating strictures of the rectum, the sponge tent is certainly well adapted and may be used with great effect. I shall allude to two cases only, by way of illustration. A gentleman, somewhat advanced in life, had been for years troubled with constipation of the bowels. On examination I found a stricture in the rectum at the usual place, within reach of the finger, so tight as merely to admit its tip. The stools accorded with this state of the gut. The sponge tent, prepared with mucilage and transfixed as described was introduced daily; each larger than the preceding. On account of the parts becoming irritable, a day or two was now and then allowed to intervene. In about three weeks the stricture was so far removed, either by dilatation or absorption—probably both—that masses of fæcal matter almost as large as a hen's egg passed with, comparatively speaking, but little difficulty, except what was occasioned by the irritable state of the sphincter ani which is very apt to exist in such cases. The other case was that of a lady, which was treated much in the same way and very effectually relieved. That she was permanently cured I am not able to say, having lost sight of her for several years past. In the case of the elderly gentleman, death, as I was informed, was the final result—the disease proving malignant.* It was so deemed when it first came under

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of the secondary symptoms of syphilis—also for the removal of the pains which savor much of rheumatism, but frequently resemble those caused by the venereal virus. The cor. sublimate may be wholly left out, or its dose so modified as to meet each case.

* Stricture of the rectum, when connected with malignant disease, furnishes an important diagnostic symptom by which to distinguish scirrhus and medullary cancer from the epithelial, in which there is no stricture, or actual contraction of

my observation; and was so considered by Professor Willard Parker, who saw the patient several times in consultation with me. I did not see the termination of the case, the patient having, by the advice of a certain non-professional gentleman, passed into the hands of a quack. The tent I commonly use in these cases is prepared without the mucilage, but when there is much irritability it dilates too rapidly, and had better, under such circumstances, be prepared with the mucilage. In some cases I have found the parts too irritable to tolerate the tent, unless its introduction was preceded by a suppository composed of the watery extract of opium.*

7. *Hemorrhoidal tumors, or bleeding piles.*—The sponge tent introduced just within the external sphincter ani may be successfully resorted to for the compression of hemorrhoidal tumors, and also for the suppression of hemorrhages from the rectum. It should be transfixed by the thread as directed, for its retraction or withdrawal, if deemed expedient.

8. *Stricture of the urethra.*—The sponge tent may be used for the cure of stricture in the urethra. In such cases, a full-sized metallic sound or bougie should be first carried down to the stricture and pressed firmly against it for a longer or shorter time according to the degree of uneasiness it occasions, when it should be withdrawn, and a tube, open at both ends, containing the tent and a piston, introduced, which may be carried down to, or against the stricture. When the tent has been carried home and pressed some time against or into the stricture, and in fact entirely forced out of the tube, the piston may be withdrawn and a few drops of water passed through the tube down to the tent which is kept steadily in its place within the stricture, or firmly pressed against it. In a short time the tube also may be withdrawn, and the tent having expanded so as to retain its place, allowed to remain. As it should be invariably transfixed with a thread as described, its withdrawal is entirely at the discretion of the surgeon, or patient. To guard against all contingencies, a button or a piece of sponge too large for admission into the meatus urinarius externus should be attached to the other end of the thread. This precaution may be the more proper, when the stricture is situated far up or near the bladder in the membraneous portion

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the gut, although there may be and often is a softened tumor trenching upon the cavity of the intestine, and sometimes even protruding through the anus. Until this happens, or until the sphincter is interfered with, defecation seems to be but little affected in this last mentioned affection—epithelial cancer.

* ℞ Watery ext. of opium, 2 grs.; ext. hyosciamus, 1 gr.; ext. belladonna, ½ gr.; mix, make into a suppository, to be introduced into the rectum an hour or two previous to the tent.

of the urethra. Some may consider this unnecessary, but it can do no harm; and as it is known that this canal is endowed with a kind of suction as well as an expulsive power, by which bodies have sometimes been carried backward into the bladder when they have been lodged only a little distance within the external meatus, it is a proper precaution.*

The surgeon need be in no hurry to remove the tent; even though it block up the urethra, never mind—the expulsatory power of the bladder in attempts to micturate will help to dilate the stricture. Let the patient get rid of the tent in this way if he can; if not, let him withdraw it. If the stricture of the urethra itself be, as it sometimes is, very irritable, a few drops of the saturated solution of the extract of belladonna and watery extract of opium, may be passed down to the stricture half an hour before the introduction of the tent. For obvious reasons the patient should micturate a short time previous to the passage of the tent, or solution. This part of our subject relative to strictures of urethra will be more particularly considered at another time.

9. *Dilatation of the female urethra.*—Women are rarely seriously troubled with urinary calculi, and are, therefore, less liable to be subjected to the treatment necessary for their removal, to which the other sex is obliged to submit. In them, the urethra is not only short but very dilatable, so much so that in those who have borne children, the finger well oiled may be carried directly up into the bladder, without any previous preparation, or much accompanying pain or subsequent uneasiness. After this experiment forceps may be introduced, and the stone, which in the female bladder is almost always soft, be crushed, and the fragments removed or allowed to escape.

But in case it is deemed advisable to dilate the urethra, the sponge tent is admirably adapted to the purpose. It may be prepared with or without the mucilage, as shall best accord with the exigencies of the case. We shall leave this part of our subject to the ingenuity and tact of the general practitioner. It has been objected to the sponge tent that incontinence of urine is apt to follow its use—when it does so, it seldom lasts more than a week or ten days.

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* I have known several instances of the kind. An elderly man foolishly passed a white bean into his urethra and allowed it to remain, thinking that it would necessarily be forced out at his next micturation. When his attention was next turned to it, the bean could not be felt; he, therefore, concluded that it had escaped. It was not long, however, before he began to experience symptoms of stone in the bladder. In about a year I performed the operation of lithotomy and removed a phosphatic calculus from his bladder which had a white bean for a nucleus. The patient recovered and it is presumed never repeated the experiment.

10. *Morbid growths.*—It is a fact with which surgeons are quite familiar, that morbid growths are less able than primitive structures to resist agencies that disturb their repose without causing undue excitement. With regard to such as tend to malignity we should be careful to avoid exciting much irritation, and endeavor to act on them through adjacent parts which, though less apt to resent the interference of the surgeon, will, nevertheless, not tolerate the presence of anything useless or annoying beyond a certain degree.

If the annoyance be such, however, as to interfere with their comfort, or disturb their normal action, the absorbents in the immediate vicinity forthwith set about removing the offending cause; hence it is that moderate, but firm and steady pressure, or the mere displacement of a tumor, or morbid growth, from its original seat to another location in which it is regarded as an intruder by the parts incommoded by its presence, is frequently all that is required for its entire removal. Besides, this pressure, or rather compression, acts in other ways in the removal of tumors and tumefactions. It prevents the influx and promotes the efflux of fluids, produces a change in the density and other properties of both solids and fluids, interrupts nutrition, favors exosmosis and renders the exosmosed matter effete and more liable to be absorbed;* for it is a law of the system which requires that whatever has become useless or effete shall be eliminated, or at least that the effort to effect its removal shall be made. To accomplish these objects, pressure has been more frequently resorted to by members of the profession than any other agency, with, however, but moderate success, owing probably to the fact that the best method of applying it had not been adopted. Observing and reflecting upon the effects produced by the pressure of aneurismal and other tumors, on contiguous parts, my attention was particularly directed to the subject with the hope of finding an artificial substitute by which pressure analogous to that by the afore-mentioned agents might be made sufficiently powerful for the removal of morbid growths which are, as suggested, less likely than parts in health to resist such pressure if persistently and judiciously applied. Well aware of the various expedients to which recourse has been had, and of their failure or only partial success, the thought occurred to me whether considerable pressure might not be made upon even a sensitive part by means of a soft sponge bound more or less firmly upon it, and that its effect would be increased by soak-

* A German author, Professor Lehman, I believe, tells us that "absorption is nothing but a function of the mechanical condition."

ing it, bandage and all, with water. Experience soon established the principle, the plan and its adaptedness. Although the result appeared certain, still the progress was slow; it therefore seemed to be a desideratum to devise some means by which the efficiency of the sponge might be increased, when the recollection of the beneficial effects of the compressed sponge in the cure of caries and other affections of the bones suggested that it might be the very desideratum sought, a suggestion which we trust has been fully verified and elevated into a principle by ample experience.

Our attention in connection with the removal of morbid growths by the compressed sponge, will be mostly devoted to malignant tumors, particularly cancerous, involving in a great measure the principles and treatment also proper to those which are not malignant.

The pressure occasioned by the expansion of the compressed sponge disturbs the cancer cells, and forces them out of place; affects their consistency, and causes them to be dissolved, and the tumor, thus freed of its malignant ingredients, may be more readily removed by absorption, if the process be continued, or, if not absolutely removed, it may be so divested of its malignity as to remain harmless for years, as happened in a case which will be related. Does this pressure, as the doctrine teaches, deprive the cancer cells of their power to contaminate other parts, or the system in general? The cancer cell, like the pus globule, is dissolved, and being thus changed in its nature, is more readily absorbed, and, of course, enters the general circulation not as a malignant, but innocuous substance; and instead of contaminating the system, is eliminated therefrom as are other disintegrations of tissues and structures, without harming any part. Cancerous affections, locally considered, seem to derive their nutriment from surrounding parts by a sort of imbibition or endosmosis, and not from any direct vascular medium. The sponge, by its peculiar mode of pressure on the diseased part, either destroys its texture or prevents its being nourished, and continues to do so until its agency is fully resisted by the circumjacent parts, which are in a healthy condition.* When this is accomplished; the sponge may be dispensed with. This remedy may, and undoubtedly will, fail when either the constitution or the surrounding parts are, to any considerable degree or extent, affected. The cancerous diathesis, even when somewhat apparent, does not, however, seem to preclude its use, as will be seen by the following case.

* In this respect its effects seem to be somewhat analogous to the action of certain caustics—particularly arsenic, as mentioned by Dr. Rush.

Case 1.—Mrs. L., a young widow, about 30 years of age, of a pale, leucophlegmatic temperament, by the advice of a medical friend, called to consult me on account of a scirrhous tumor in one of her breasts, which had been for some time a source of considerable uneasiness to herself and friends. This I endeavored to calm, and assured her that the tumor would probably be removed by the means which would be recommended, if systematically and perseveringly followed. She immediately placed herself under my care, and the compressed sponge was applied, and bound firmly upon the tumor, and then completely saturated with water. This last process, (wetting the sponge) however simple it may have appeared, was, as usual, attended with considerable difficulty—much more than would have been anticipated by those not familiar with the process. Fresh pieces of compressed sponge were bound on day after day, and this course was pursued for some five or six weeks, perhaps a little longer, when it was difficult to find the least vestige of the tumor proper, but there remained a slight density of structure, which was probably the result of the firm continuous pressure to which the parts had been subjected. She was dismissed with the advice to continue the treatment a week or two longer, and then lay it aside; she was also requested to inform me immediately of any symptoms of return, since which I have heard nothing from her. The inference then is that she has remained well.*

Case 2.—In June, 1851, Mrs. Y., a married lady, consulted me concerning a diseased mamma. On examination I found a scirrhous tumor as large as a hen's egg, in the right breast, below the nipple, and another half as large, under the outer edge of the pectoralis major muscle, about midway between that first mentioned and the axilla. Both were of a woody hardness. Neither had been much painful, or only so at times. They had been diagnosed as scirrhous by several surgeons, who had advised their removal by an operation to which she was unwilling to submit without further advice. Her constitution being apparently good, and scarcely if at all affected with the cancerous cachexia, she was encouraged to expect a favorable result from the use of the compressed sponge, which was immediately applied as in other cases, and bound on, at first with a common bandage, and saturated with water. After a few days, when the inconvenience of the tight bandage had in a measure sub-

* On the 16th of July last, I had the pleasure of seeing this lady, and of ascertaining from herself that a perfect cure had been effected, and that her health, which very soon began to improve, was now perfect. I believe no medicine was administered, or, if any, only a few blue pills to correct the digestive functions.

sided, one of india-rubber cloth was superadded, which, owing to its elasticity, greatly increased the efficacy of the sponge.*

As this rubber bandage was impervious to water, some difficulty was experienced in wetting and keeping the sponge fully saturated, which was, however, satisfactorily accomplished by raising the edge of the rubber bandage, and spending considerable time, and taking much care that the water reached the sponge in sufficient quantity to cause its full expansion. About the first of October following, the tumor nearest the axilla had entirely disappeared, and the other had very much diminished, and gave the patient no further uneasiness. Soon after this she ceased to visit me, and I heard nothing more of her, except that she had left the city.†

Soon after the occurrence of the first case, another of a different description, and involving an additional principle, came under my observation, and was subjected to a similar mode of treatment. A medical gentleman who had heard something of the result of the former case, requested me to see a lady affected with malignant disease in the upper part of the left breast. There was a tumor as large or larger than the fist, situated about midway between the nipple and the axilla. In the centre and the most prominent part of this tumor, was an opening as large as a sixpence, from which extended inward, and rather upward, a kind of fistulous passage, which would scarcely admit the end of the little finger. The extent of this sinus in the direction mentioned, was about three inches. It discharged daily a large quantity of thin sanious matter. The patient was pale, emaciated, and very feeble. The cancerous cachexia was unmistakably present. The case was manifestly hopeless. As it would do no harm, and might possibly do some good, I advised the Dr. to pass a sponge tent into the fistula its full length, and have it enlarged every day, so as to fill the passage. This was done to test the efficacy of the sponge in causing the destruction of morbid parts or diseased structures rather than from any expectation of its curative agency, the disease having progressed too far, and produced such a deleterious change in

* I have forgotten whether this kind of bandage was used in Case 1.

† On the first of July last (1858), she called to consult me on account of another difficulty, for which she had just visited the city. On examining the breast, I found below the nipple a tumor firm and hard, about the size of a small almond, which she said was a remnant of the tumor for which the sponge had formerly been applied. The treatment, she informed me, was continued for some time after her last interview with me, but with less energy, and was finally laid aside on account of her being pregnant. She, however, went through her gestation, accouchment and nursing, without any trouble from the tumor, which has ever since remained quiet in its present condition.

her system. This course of treatment was followed by surprising results. When I saw the patient again, in about a fortnight, very considerable progress had been made in the removal of the local disease. The cavity formed by the sponge occupied more than half the tumor, and the lady's health was much improved.*

About ten days after this, I saw her again in company with Prof. Van Buren, and the attending physician. The sponges had been faithfully applied, and increased in number and size, so that they now occupied and filled a cavity nearly commensurate with the tumor, while the lady's general health had surprisingly improved. Her night-sweats had ceased—she could now walk about—sit up almost the whole day, and eat, with a relish, a fair allowance of food at each meal. The doctor was advised to pursue the same course of treatment, which he did for a short time only; but with the same results. His attendance being, as I was informed, discontinued in consequence of a disagreement between him and the patient, or some of her friends. Of the final result I have no knowledge—although it is presumed to have been unfortunate, yet whatever it may have been, the case showed beyond question the efficacy of the compressed sponge in the removal of morbid structures. The favorable effect on the general health of this patient, was attributed to the absorption of the secreted matter by the sponge, which was thus prevented from being again received into the system. I was not at this time aware that the sponge had ever been used for this purpose; but on recently looking over some of the old works which I find in my library, I discovered that it is mentioned in the 2d volume of the Medical Observations, published in 1762, that a Mr. Thomas Kirkland, Surgeon at Ashby de la Zouch, in a letter to Dr. Hunter, read May 5, 1760 (see Mr. Kirkland's letter, page 278), before a society of physicians, on amputations, alludes to this topic, and speaks of the use of the sponge in high terms. As his method of using it differs materially from mine, I shall quote his own language. "As no method, that I know of, has hitherto been discovered, to prevent this return of matter into the blood, I am induced by repeated experience, to recommend, as soon as digestion is complete, the application of pieces of fine sponge (the wound being first covered with thin layers of dry lint), which answer this purpose by imbibing the thinnest part of the matter from the lint, while that which remains becomes too thick to be absorbed." Mr. Kirkland's observations are so much to the point,

* This effect of the sponge has been observed in other cases, and will be again adverted to.

and so important, that the entire letter above referred to will be found in the appendix.

When it can be borne, whether compressed or not, I am satisfied that the sponge is an excellent application to cancerous and certain other ulcers of a vitiated character. The secretions of such ulcers, when taken up and carried into the general circulation, seriously affect the health, and may, and indeed often do, as I have had frequent opportunities of seeing, break down the constitution, and ultimately destroy life, all of which deleterious consequences, the sponge, by absorbing the secreted fluid, tends to prevent. In the removal of the elevated, indurated edges of the callous ulcer, it is exceedingly useful. It is a much more pleasant way of getting rid of these surroundings which prevent the healing of the sore, than by shaving them off with a knife, or destroying them by applying the nitric acid or caustic. The sponge should be large enough to overleap the edges of the ulcer, at least half an inch.

On a visit to the Bellevue Hospital, some years since, my attention was called to a case of cancer in the breast, by my friend Dr. S. Conant Foster. The history of the case in brief, was: that the breast had been amputated by Dr. Mott, senior, for cancer; and the disease having returned, had made considerable progress towards ulceration. At my suggestion, the compressed sponge was applied, and its use assiduously and judiciously followed up by the zealous young house physician, whose name I regret to have forgotten, seconded by the skillful advice of Dr. Foster. Some weeks after, I was again asked to see this patient, and had the satisfaction of finding that the affection had almost entirely disappeared, and was subsequently informed that she soon left the institution, with a mere remnant of the disease.

For further particulars concerning this case, I beg leave to refer to the following letter from Dr. Foster:

24 EAST 21st STREET, N. Y., May 14, 1855.

DEAR SIR: The cases of cancerous disease treated by me in Bellevue Hospital some years since by means of the compressed sponge were three in number. The attempt was made in one or two other cases, but circumstances prevented its being continued long enough to have any result. Not having notes of these cases, I am obliged to trust to memory for the facts, but in their essential features, the histories are so clear in my recollection that they may be relied on.

Case 1.—This patient, a woman about 48 years of age, entered the hospital with a scirrhous deposit in the left mamma, or rather where the mamma had been, of the size of a hen's egg. She had been operated on for a similar tumor, 2 years before, by Dr. Mott, and the disease

was now returning about the cicatrix. Her general appearance was not decidedly bad, but there was a somewhat sallow hue of the skin. The sponge was applied steadily for three or four weeks, at the end of which time, the induration had almost wholly disappeared, leaving the skin and subjacent tissues in a perfectly soft and healthy condition. She left the hospital soon after my term of service closed, at which time the tumor was not bigger than a filbert.

Some months after, she reëntered the hospital, the disease having returned, and was operated on by Dr. Van Buren. Again, within a year from the last operation, she was again in the hospital under my care. The cicatrix, and parts in the neighborhood, were again the seat of a malignant deposit, the surface of which was red and angry in appearance, very hard and nodulated. The axillary glands were now decidedly involved; I believe that one or more of them had been removed at the last operation. At any rate the induration was continuous, from the lowest affected point on the thorax, obliquely up to the axilla. Ulceration had also commenced near the lower end of the cicatrix, and had reached perhaps an inch in diameter. She was now suffering a great deal of pain, both at the seat of disease, and in the limbs, and had lost flesh and appetite. She was anxious for the application of the sponge, and it was carefully applied, first dressing the ulcer with simple ointment. Its effect was very soon perceptible. Her pains were diminished, while the tumor perceptibly decreased, and the ulceration was reduced to the size of a three cent piece or less. The redness of the surface also lost its intensity.

During the three or four weeks that the sponge was applied at this time (and it was not done very regularly, owing to the full state of the wards, and the consequently arduous duties of the house physician,) she had a cough, which led to the suspicion of a cancerous deposit in the lungs. She had also, if my memory serves me, a severe eczema of the legs, and once I think an attack of erysipelas. To these affections was at length superadded dysentery, which passed into a chronic state, and finally terminated her life. Her death occurring some weeks after my term of attendance was completed, I did not witness the autopsy. The important point, however, in this connection, was to determine whether any cancerous deposits existed in the internal organs. I am informed that this was not the case, and that the death was apparently attributable to the intestinal disorder.

Case 2.—This was a woman somewhat younger than the last patient. When she entered, she had a scirrhous tumor of the breast nearly or quite as large as in the first case. The sponge was faithfully applied for some weeks. It occasioned pain at first, so that she could only bear it for an hour or two. Soon, however, she bore it longer, and the result was a rapid diminution in the size of the tumor. Before the complete disappearance of it, however, the patient left the hospital, and I have not since heard of her.

Case 3.—This was a case in which the cancerous deposit was diffused over a large surface, extending up toward the clavicle, and to the integuments of the side, below the axilla. The application of the sponge

could not be as efficiently made as in the other cases on this account. Nevertheless, wherever the pressure was applied, it did not fail to be followed by absorption of the indurated tissues. The termination of this case I do not know.

The impression left on my mind by these cases was very strongly in favor of the treatment adopted. In no instance could any unpleasant effect be perceived as a consequence of the pressure, and in every instance the absorption of the heterologous deposit was rapid and marked.

It was suggested by several of my colleages that this plan of treatment was likely to occasion deposits in the liver or lungs. Whether such deposits are more liable to occur under this than under any other plan, can only be determined by time and experience. That secondary deposits are not a *necessary* consequence of absorption of the original disease seems to be almost settled by the first of these cases. It seems to me that there is great reason for hoping that some means will one day be discovered whereby these, and all other morbid products, having been once taken up by the absorbents, may be eliminated from the system entirely.

I am, dear sir,
With great respect,
Your ob't servant,
S. CONANT FOSTER.

J. P. BACHELDER, M.D.

Case 4. *Malignant disease of the jaw.*—A lad about 8 or 10 years old, from New Jersey, was brought by his mother to Dr. Mott's clinique, in 1847 or '48, with a fungous tumor protruding from the lower jaw, situated in the space formerly occupied by the first and second molar teeth on the left side.

This morbid growth had made its appearance some months before, loosening the teeth—protruding on each side of them, and pushing away or involving the gums, previous to his coming to the clinique. The teeth had been extracted, and the tumor, with, I believe, a portion of the alveolar process, removed by a surgeon in the boy's immediate vicinity, which operation was now repeated by Dr. Mott. In a few weeks the little fellow was brought again to the clinique—the disease having returned. Unable to lay my hand on the notes of the case, I have indeed forgotten, as well as Dr. Mott himself, whether another operation was performed. Whether it was, or was not, is quite immaterial to our purpose. The disease had returned: and at my suggestion, the compressed sponge was to be tried; and he was assigned by Dr. Mott to my care and management. I took him with his mother, to my office, and cut out two or three pieces of thoroughly compressed sponge sufficiently large to cover the whole tumor, and indeed extend beyond it on the outer and inner sides of the alveolar process and rising higher than the upper surfaces of the adjacent teeth before and behind it; and

then bound the lower maxilla firmly to the upper by means of a roller, leaving the pieces of sponge to expand by the imbibition of saliva. The mother was supplied with several pieces of compressed sponge, and directed to apply them in the same manner once or twice a day. She was told by Dr. Mott that the disease was of a malignant character, and would be very likely to destroy her son—certainly, if not properly and faithfully attended to. The doctor's faith in a favorable result was obviously not very strong; nor was anybody's else, except my own. Notwithstanding, in the course of five or six weeks, the mother and lad again appeared at Dr. Mott's clinique, not to ask advice, but to show the result—that the boy was perfectly cured. The remedy had been entirely successful. The location of the disease was favorable to the application and action of the sponge. The result of this case was analogous to what I had witnessed in others: one only, however, will be related.

Mrs. ——, a lady between 50 and 60 years of age, residing in the town of Litchfield, Herkimer Co., N. Y., affected with a similar disease, applied to me, some eighteen or twenty years ago. The diseased mass, situated in the lower jaw on the left side, with the alveolar process connected with it, was entirely removed by an operation. Knowing the nature of the affection, clean work was made of it—notwithstanding, it returned, and I contemplated another removal by sawing through the entire jaw, before and behind the diseased part, where it appeared sound, and removing the intervening portion from which sprang the tumor. Having learned from experience, as well as from considerable observation, the inutility of attempting to remove malignant disease of a bone by operation, without removing the entire bone, I abandoned this project, for the present, at least, and resolved to try the compressed sponge, without having at that time much faith in its ability to cure a disease which had resisted what appeared to have been a thorough application of the knife; but by what I had seen of the effects of the compressed sponge in caries, and some other affections of the bones, I was, however, induced to make the trial, and although the patient was considerably advanced in life, the cure was as perfect as in the case of the boy.

11. *Cancer of the penis with enlarged glands in both groins.* —P. N——, a patient in the New York Hospital, had malignant disease of the glans and prepuce of some eight or ten month's standing. The inguinal glands were also considerably enlarged, so much so that the propriety of an operation was seriously mooted by the surgeons of the hospital. The suggestion of the writer that the diseased glands might be removed by the use of the compressed sponge, had, perhaps, some

influence in its favor. The amputation was performed by Dr. Hoffman, August 31, 1846, as appears by the hospital books, and in a day or two the sponges were applied to the tumors in the groins, which very soon began to diminish; and when I last saw the man, a short time previous to his leaving the institution, the tumors in one groin had entirely disappeared, while a mere remnant was perceptible in the other.* The right groin was occupied not by a single tumor, but by several, forming a mass or congeries of enlarged glands.

Remarks.—Soon after the operation, his general health began to improve, and ere long the cancerous diathesis, which was somewhat apparent on his admission, entirely disappeared. He left apparently well, and has not been heard from since.

Although I have had but little experience in the treatment of cheloid tumors which are so apt to return after removal, I am inclined to the opinion that the compressed sponge will be found quite as apt to succeed, and, indeed, more so than any other method of treatment which has hitherto been adopted.

12. *Swelled Testicle.*—At first it might seem difficult to make the application to this organ, but with suitable attention and skill on the part of him who applies the sponge and bandage, and care on the part of the patient, the difficulty vanishes. The testicle should be turned up on the abdomen, and upon it the sponge and spica bandaged, so modified and applied as to suit the exigencies of each particular case. At first it may be proper to apply the sponge uncompressed for a day or two, and when the patient and part have become somewhat accustomed to the application, the sponge more or less firmly compressed, and more or less firmly bound on, may be substituted. The patient must be confined to the bed, and the bandages readjusted whenever the testicle slips from the place of its confinement, which it is very apt to do, unless considerable care on the part of the patient is exercised.†

13. *Vegetations*, when situated on the glans penis or prepuce, may also be speedily removed in the same way—by turning the organ up over the pubes—with the sponge and bandage, applied as in the preceding case. To prevent the removal of the

* Hospital Record.—"Sept. 8, the glands perceptibly diminished. October 6, the enlarged gland in the left groin has entirely disappeared—that in the right is much diminished under iodine and pressure."

† The removal of the enlarged testicle, also that of enlarged glands in the groin, is much promoted by the occasional administration of an emetic. Emesis may be advantageously connected with the compressed sponge, particularly in the discussion of buboes and also in diseases of the joints. As there is a disposition to sleep after the operation of an emetic, it is a rule of practice with me, in all cases which admit of delay, to have it administered in the latter part of the evening, in order to secure the patient a good night's rest.

dressing when the patient urinates, a flexible catheter may be introduced. The surgeon will often be surprised at the rapidity with which these growths are destroyed by this method of treatment, and with so little pain or uneasiness. The greatest inconvenience seems to be that of lying in bed; to this, however, the patient had better submit than suffer the pain of cauterization, or the application of the knife.

14. *Tumors not malignant.*—A man about 35 years of age, a patient in the N. Y. Hospital, of a sandy complexion and scrofulous habit, was admitted mainly on account of a soft, quaggy tumor at the angle of the jaw, about as large as a small orange. To this the compressed sponge was judiciously, skillfully, and effectually applied by Dr. Washburn, the house surgeon, by which the entire diseased mass was removed in a short time. I have not the particulars of the case, but I believe he took iodine in some form or other at the same time, and probably had it applied to the part affected, conjointly with the sponge. Many cases could be detailed in which enlarged lymphatic glands in this situation, and also in other parts of the body, have been speedily removed. I have been well—indeed, better satisfied with this than with any other method of treating tumefied glands in the groin connected with chancres. During the last fifteen years I have had but two cases of suppurating bubo. In one the swelling had been of too long standing to be discussed, and in the other the suppuration was owing to the carelessness, or rather folly of the young man, who would continue to walk about instead of remaining in bed as directed. In both these cases the hardness and swelling which remained after the discharge of the matter, were successfully and speedily dissipated by the application of the compressed sponge and recumbent posture.* In some of these cases of enlarged inguinal glands I have used in addition to the bandage the hernial truss, with a stiff spring, and the glass pad which was once in vogue. The pressure made by this instrument in addition to the bandage can be easily graduated by putting pads of cloth between the spring and the body on one side or the other of the tumor.

15. *Enlarged joints.*—Whether from an effusion of fluid into the cavity as the sequel of synovitis, or of an effusion of some kind

* When a gland or a circumscribed tumor is pretty certain to suppurate, it is not even then necessary, or in many cases proper, to lay aside the compressed sponge. Make an opening in the piece of sponge to be applied, which will correspond in size and situation with the focus of the maturing abscess, and apply it with whatever firmness the patient will bear, and cause it to be kept wet with warm instead of cold water. In this way the sponge will act as a poultice as well as by compression.

into the cellular tissues surrounding the joint, the compressed sponge is the remedy which has succeeded better in my hands than any other. In the second variety its success has been more prompt and uniform than in the first. In both, the sponge is to be considered an important means superadded to those in ordinary or common use.

16. *Of compressed sponge as a styptic, or an application for stopping the flow of blood.*—While we admit that the ligature is the only remedy upon which the scientific surgeon should absolutely rely for the suppression of hemorrhage, especially that which comes from a wounded artery, still it will be admitted by every surgeon of much experience that cases do occur in which he is glad to have recourse to other means even when the flow of blood proceeds from arteries of considerable size. Wounds of the palmar and plantar arteries not unfrequently give the surgeon a good deal of trouble, and it is, therefore, well to know that they may be always controlled by this agent, particularly if aided by position. The phenomena attending these wounds are often somewhat peculiar. The blood, forced extensively into the surrounding cellular substance—perhaps under the aponeurosis, seems to come welling out from a considerable surface, which renders it quite difficult to find the wounded vessel. If this surface be scraped again and again with the handle of a scalpel, the extent from which the blood issues will be lessened down to a small space. Upon this let a piece of compressed sponge, shaved to a point, be applied, and perhaps another still broader, followed by a compress and bandage, and the wounded part brought to an acute angle with the limb above, to which it may be bandaged, or confined as closely as is consistent with the comfort of the patient; the uneasiness occasioned by this procedure may be relieved by extending the limb only a very little, from time to time, just to give temporary relief, which may be done as often as required without a recurrence of the hemorrhage. Although it is undoubtedly a fact that this position of the limb alone will in most cases control the hemorrhage,* in order to be sure I employ the sponge as recommended.

* With the influence of this arrangement of parts upon the arterial circulation of the hand and wrist I became accidentally acquainted many years ago, by failing to feel the pulse, or feeling it very unsatisfactorily when the arm was much flexed at the elbow. On further examination the same result, though less decisive, was found to follow the flexure of the leg on the thigh, and still more, that of the latter on the trunk. In some, these positions will render the pulse at the wrist, and also the beat of the anterior and posterior tibials, very weak or quite imperceptible at the points where their pulsations are most readily felt—*i. e.*, immediately before or behind the lower end of the tibia—a fact of too much impor-

PACHYDERMATOCELE.

This is a name given by Dr. Mott to an affection which involves the integument and subtegumentary areolar tissues immediately beneath the part affected. It is a rare disease—not described in any of our elementary books, to my knowledge, certainly. I do recollect having seen but three cases. In two of these, the affection occupied the side of the face and head, to which it seemed to be confined. In the third, that of a woman, it was much more extensive. In all these cases, an operation for the removal of the hypertrophied mass (which was congenital and seemed to be somewhat analogous to the nævus), was instituted and performed by Dr. Mott. In the first, that of a young man named Rich, whom most of the members of the New York profession have probably seen; the disease returned, and Dr. Mott repeated the operation; again the disease returned. Both operations appeared to have some, but no very decided effect in retarding the growth. Of the final result of the third case I have not been informed. In the second, the disease returned, and assumed very much the same appearance as it did before the operation. It was at this conjuncture that the treatment by the compressed sponge commenced. In order to make the principle of displacement as well as that of compression available, the hypertrophied mass, which hung in folds on the side of the face, was turned up as much as possible—even put considerably on the stretch and kept in that condition by binding upon it pieces of compressed sponge. These were adapted to the part as far as practicable, and bound firmly on with a bandage of old sleazy cloth and the whole thoroughly wet. To do this effectually was attended with considerable difficulty, which was overcome chiefly by the assiduity and perseverance of the female relatives of the patient. In this they were greatly encouraged by the favorable change which was in a short time quite perceptible. Although fresh sponges which covered the whole pachydermatous mass were applied every morning, the improvement was not equally alike favorable in all parts of the diseased mass. That portion which occupied the orbit and closed the eye on the affected side did not yield as readily as other parts which could be more effect-

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tance not to be made available in practice, especially in the treatment of wounded arteries in the hand or foot. It remains to suggest the trial of position in the treatment of popliteal aneurism. The object in such cases being the coagulation of the blood in the tumor, might not this be effected by bending the thigh upon the pelvis and confining it in that position for several days, lessening its irksomeness by the administration of opium, or occasionally ether or chloroform, or by slightly altering the position of the limb—extending it a little for a short time—not enough, however, to renew the circulation?

ually acted on by being placed between the sponge and bones of the face, and cranium. Even when the mass elsewhere had been removed, the portion about the eye had only considerably diminished. In order to act more directly upon it, small pieces of sponge nicely fitted were applied next the lids and surmounted by larger pieces. This plan succeeded well—the eye bore the pressure, although considerably increased from day to day, with much less complaining than was expected.* In about six weeks or two months the whole mass was absorbed except a small portion about the eye, which incommoded him so little that he resumed his business, that of a peddler, during the day, and applying the sponge and bandage only during the night. Thinking himself cured, or so nearly well that the small portion of diseased structure which remained would go away without further trouble, he ceased to call on me and soon left off the treatment. In this calculation he was miserably disappointed, for in a few months the disease seemed to spread from the eye and extend in every direction. Ashamed of having neglected to persevere in the treatment, as had been enjoined upon him to do, so long as any vestige of the disease remained, he was for some time deterred from calling on me. When he did, I was exceedingly chagrined to find that the disease had not only returned, but had been allowed to progress until it had got to be as extensive into one third as it was when the sponge was first applied. In one respect it was fortunate, for it gave another opportunity for testing the efficiency of this mode of treatment. The sponges which were again applied in right good earnest, caused a more rapid absorption than at first. The disease was now wholly removed—in how long a time I am not able to state with precision, on account of my notes of the case having been either mislaid or lost, which compels me to state it from memory. Some months after the treatment had ceased, I saw him, and examined the part, originally the seat of the disease, and came to the conclusion that the cure was complete. From that time to this I have heard nothing of him. He was charged to call on me without delay, in case any manifestation of return should occur. The legitimate conclusion and inference is that the cure is lasting.

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* In some affections of the eye, as staphyloma, enlargements of the ball, and particularly in granulated lids, the sponge compressed or uncompressed, bound with a proper degree of firmness, answers a very good purpose. Any medicated lotion may be used instead of water. In cases of granulated lids it does not interfere with the use of nitrate of silver or caustic.

VARICOSE VEINS.

I have recently used the compressed sponge in a case of varicose veins of the inferior extremities of a patient who has long been affected with this complaint, and whose distress has been great when obliged to be much on her feet. The disease seems to have been a family complaint; owing probably to a constitutional weakness of the coats of the veins which allowed them to dilate so as to prevent their valves from effectually sustaining the supra column of blood; the consequence was that these vessels below the knee became varicose. For the purpose of sustaining this superimposed pressure, particularly when the patient was in an erect posture, a compress was applied on the internal saphena vein where it passes behind the condyle of the femur—an expedient often productive of much comfort. In this case, however, a piece of compressed sponge was substituted for the compress, and a vulcanized india-rubber bandage for one of cloth. The sponge, when thoroughly wet, very effectually compressed the vein, while the bandage, applied so as to make little or no pressure on any other vessels, was borne with slight inconvenience. This simple appliance relieved all the symptoms and enabled her to walk out as much as she pleased, without the inconvenience or suffering incident to such exercise. The bandage and sponge were removed at night and replaced in the morning.

Copy of a Letter from Mr. Thomas Kirkland, Surgeon, at Ashby de la Zouch. Communicated to Dr. Hunter. Taken from the second volume of Medical Observations and Inquiries. By a Society of Physicians in London. Read before said Society, May 5, 1760.

It is well known to practitioners in surgery, that the greatest danger attending the cure of those who have undergone an amputation of the larger extremities, is owing to an absorption of matter from the wound after inflammation is gone off, and the vessels are become pervious. Indeed, when the patient is healthy and strong, and the matter absorbed is mild and good, it passes off in the urine, without doing much mischief; but in scorbutic constitutions, or where the habit is become bad by deferring the operation too long, or from any other cause, the matter absorbed being acrid, irregular feverish paroxysms, with loss of appetite, sooner or later, according to the degree of acrimony, come on; and the patient is often carried off, either by a colliquative fever, or a profuse hemorrhage from the whole surface of the wound, notwithstanding the most efficacious remedies have been used.

As no method, that I know of, has hitherto been discovered, to prevent this return of matter into the blood, I am induced by repeated experience, to recommend, as soon as digestion is complete, the application of pieces of fine sponge (the wound being covered with thin layers

of dry lint), which answers this purpose by imbibing the thinnest part of the matter from the lint, while that which remains becomes too thick to be absorbed.

By this means the new flesh is kept moist, without being too much relaxed, which happens when it is constantly soaked in thin matter; and the discharge from the wound is less than would otherwise happen, the fibres being preserved in a state capable of making a proper resistance to the impulse of the circulating fluids; a circumstance of great importance, where the patient is become very weak before the operation is performed. Nor will the practice of removing the dressings twice a day, or laying them on loose, that the matter may run off the wound, answer the same end; for the lint that is usually applied collects, and always retains, a quantity of matter against the ends of the fibres, which, being thin, is constantly absorbed. Besides, removing the dressings often is not only troublesome to the patient, but frequently in the country impracticable, on accouunt of the distance of the surgeon; and, when they are laid on loosely, the new flesh becomes luxuriant, and the cure is retarded for want of a proper degree of pressure.

The stump must first be surrounded with long pledgets, whose edges coming lower than the wound should be closed down after the sponge is applied, which must be wet, and dried again with a cloth, immediately before it is used, otherwise it might be uneasy upon the part: being cut into small slices, it lies much closer than when large; and it should be kept pressed against the lint with a bandage, or it will not have its proper effect.

The number of pieces may be gradually decreased, as the wound lessens; and the quantity of very fetid matter, which is pressed from the sponge, will determine how long its use is necessary. To illustrate what is here advanced, I shall relate the following case, which first put me upon pursuing this practice.

Thomas Mee, nineteen years of age, having a white swelling of the knee, the acrid matter, contained in the joint after several years, made its way out; and, upon passing a probe through the aperture, the head of the *tibia*, *fibula*, and lower end of the *os femoris* were found carious.

He was in exquisite pain, attended with a fever, looseness, and colliquative sweats; his appetite was quite gone, he was become extremely weak, and had been without sleep for some time.

Under these circumstances amputation seemed the only means left for his relief; and, thinking it better to try a doubtful remedy than none, I took off his leg above the affected part, on the 14th day of March, 1757.

From the time of the operation, all his bad symptoms declined, and in four days entirely disappeared, the wound, at the same time, having the most promising aspect; but, soon after the inflammation was gone off, and digestion complete, his looseness returned, he lost his appetite, and was again seized with a hectic fever. In a few days the wound began to be pale, flabby, and unnaturally sensitive; and a gleet was discharged instead of good matter. On examining his stools, a great

quantity of purulent matter was found in them; but a much larger quantity was contained in his urine, which had acquired its natural color after the symptomatic fever went off.

A bolster of tow was laid loosely next the lint, that the matter might run off, and the wound was dressed twice a day; but this had not the desired effect, for reasons before assigned. His urine and stools were still purulent; but upon the wound altering for the worse, recourse was had to the bark; but this medicine could not, with the usual additions in such cases, be kept from running off by the intestines; for which reason it was disused.

I then thought of the sponge and applied it in the manner described, laying over it bolsters of tow which were confined with long strips of sticking plaster, and a woollen cap.

Next morning, upon taking off the dressings, I found the sponge quite full of thin fetid *serum*, and a thick unctuous matter only remained upon the side of the lint towards the flesh.

By such dressing his urine, in two days, became free from matter, his looseness and fever gradually declined, and went wholly off; the discharge lessened, his appetite returned, and in less than a fortnight the wound had regained a good appearance. The sponge was one day omitted, and next morning there was a good deal of matter again in his urine, and he had two loose stools in the night; but the sponge being reapplied, a stop was put to these symptoms, and with the assistance of proper bandages, etc., the patient was cured. I have since used sponge with the same success in several amputations, and in other large wounds where the urine and stools were loaded with matter. Nor when it was applied as soon as the inflammation was gone off, has the cure ever been interrupted with any of those symptoms which usually follow the absorption of matter, though some patients were of extreme bad habits, and very weak.

But I have never, since the first case, laid it aside to see whether an alteration would follow for the worse, being thoroughly convinced of its good effects, and unwilling to make any experiments that might tend to the disadvantage of the patient.

Nevertheless, it cannot be of the same use in contused or lacerated wounds till the dead parts are separated, being hindered by the necessary dressings; nor is it much wanted in this case, notwithstanding extravasated blood, bruised flesh, putrifying, produce a most active poison, for the applications generally used both forward the separation, correct the putrid matter, and hinder its being absorbed, by giving it liberty to get out of the wound, provided it be sufficiently large; but when the new flesh begins to rise, and digestive balsams and other emollients become improper, it may be used with advantage.

Perhaps the use of the sponge may not appear so beneficial in hospital as in private practice, as the putrid *effluvia* arising from different kinds of sores, mortification, etc., being carried through the lungs and *vasa inhalantia* into the blood, produces nearly the same symptoms as arise from matter absorbed from the wound. However it is in this case not less useful, as it will prevent both causes acting jointly.

I would not have it understood in recommending the application of the sponge, that I thought medicines in this case always unnecessary. On the contrary, when matter is got into the blood before the sponge is applied, and nature is remiss in expelling it by the kidneys, the antisceptic diuretics and the bark may be given with great advantage. But I am persuaded if sponge is used in due time, this assistance will not be necessary, unless required on account of the patient's being brought into a bad state of health previous to the operation.

ART II.—*Four Cases of Injection of a Caustic Solution into the Cavity of the Womb, illustrative of the Advantages and Dangers connected with this Proceeding.* By E. NOEGGERATH, M.D. *

Case 1.—*Intractable hemorrhage—Injection of iodine—Cure.*—Mrs. B——, of New York, a well formed woman, of dark complexion, somewhat emaciated and pale, has been suffering from uterine hemorrhage for the last twelve months. She was married six years ago, and had one child, a boy five years old. Two years ago, her husband died, and left her in charge of an establishment for prostitutes. She became pregnant, and not wishing to bear the child to the full term, she applied to an irregular physician of Brooklyn, with a view of having an abortion performed. This was effected, by means of introducing a pointed instrument into her womb, and in a few days after the operation, the contents of the uterus were discharged. From this time, she flowed freely for about two weeks, when hemorrage ceased gradually for about ten or twelve days. It returned regularly every fourth week, and lasted for about a fortnight. The blood she lost was dark and clotted, and its discharge was increased when the patient moved about. Latterly the hemorrhage was so violent, that she applied for medical attendance, and notwithstanding she had tried several skillful physicians, one after another, not the least impression was made upon the quantity of blood lost. Finally, I was called in (June, 1858), and found her suffering very much from repeated loss of blood, and unable to attend to her business. First, I applied such internal remedies as I thought proper under the circumstances, recommending at once absolute rest in the recumbent position. Alum, tannin, ergot, iron, oxide of silver were administered in large doses, and although every one of these remedies was allowed to have a fair trial, the hemorrhage was only arrested for a short time. External applications were added, cold fomentations, astringent injections, but with no better result. In this way, I attended her for about three months, without

* This article will appear in full in our forthcoming work, *Contributions to Midwifery*, etc.

making any actual progress towards a radical cure. All that could be ascertained by an examination of the parts, was a slight hypertrophy of the whole organ, and the very easy passage of the uterine probe, as high as the fundus. The latter circumstance, combined with the complete absence of pain, served to induce me to try an intra-uterine injection. With regard to the cause of the bleeding, I was of opinion that there existed small polypoid growths in the cavity of the womb, as remnants from an imcompletely detached serotina at the time of abortion, or a hypertrophical swelling of the mucous membrane in general, owing to imperfect involution after the act of violence alluded to. In both instances, an intra-uterine injection was not only justified, but demanded. An intra-uterine syringe, with long pipe, made of hard-rubber, and of about ʒss capacity, was filled with tinctura iodini, and the slender mouthpiece introduced through a speculum into the cavity of the womb, until it touched the fundus uteri. By slowly advancing the piston, I emptied the contents into the uterus, which were immediately expelled beneath the syringe, and thrown back into the speculum by violent contractions of the womb. This first injection was made at the tme when the last hemorrhage had nearly subsided, so that I had before me about twelve days till the next menstrual period. Besides a sensation of fullness about the bowels, nothing was perceived by the patient during or after the injection. She immediately afterwards got up and walked about the house. The reaction being so very trifling, I asked the patient to call at my office every other day, to have the injection repeated. This was regularly done, and after every injection, the patient rode and walked down from Twenty-sixth street to Centre, near Broome street, without experiencing the least inconvenience. The iodine was thus employed four times before the next menses made their appearance, and when they came on, a complete change in their character could be remarked. The blood was fluid instead of clotted, considerably brighter color than before, and lasting for five days, not more copious than is usual in a woman menstruating normally. When the period was over, I repeated the injection twice a week, in order to confirm the results already obtained. The next period was all that could be desired, and I discharged her as cured. She afterwards left for the country, but from occasional reports of her condition, I am aware that she has had no recurrence of hemorrhage.

Case 2.—*Uterine hemorrhage of twenty-three years standing, cured by a single injection of diluted liquor ferri sesquichlorati —Alarming symptoms after the injection—Slow recovery.*—Mrs. G——d, of East Seventeenth street, forty-five years of

age, of German parentage, menstruated early in life, and her courses continued regular up to the year 1835, when she was married, and nine months after, delivered of a healthy child. The confinement was as natural as could be desired, so that she was about the house before nine days had elapsed. Although she did not nurse her baby, her courses did not appear until twelve months after delivery, brought on, as it seems, by the use of emmenagogue remedies, and then lasted for half a year without intermission. Medical advice was sought, and everything was tried to bring on a more natural periodical discharge. But treatment seemed to have very little influence, the flux ceasing only ten or twelve days, to return with unchecked violence. This condition lasted for sixteen or eighteen years, when the menorrhagic attacks began to increase. For the last five or six years, she had very often only a few days of intermission, and this space was filled by an even more troublesome acrid watery discharge. At the beginning of 1857, new complaints were added, viz., a burning pain in the ovarian region, and a sharp pain at the time when she had sexual intercourse, which act was always followed by a discharge of blood from the genitals. She therefore dragged out a most miserable existence, being all the time wet with blood or other discharges; constantly in pain, weak, nervous, and emaciated, without the hope of relief, and altogether a burden to herself and family. Under these circumstances, I was called upon to see her, and give my advice. I found a person whose aspect was pitiful to witness, of an ashy complexion, a mere skeleton, scarcely able to move, and even fatigued by a short conversation, but resolved to submit to anything that might effect a change in her condition, be it at the risk of her life. When I saw her, I was moved with a strong desire to give her all the relief that might be afforded by medical science and art, but my hopes with regard to a radical cure were very faint, not so much from the reduced state of the patient's health, as from the fact that she had been for the last few years attended, without deriving much benefit, by Dr. S., a physician for whose ability and learning I entertain the highest admiration. A digital examination being necessary, was readily consented to. The vaginal portion of the uterus rested somewhat lower than it ought to be under normal circumstances, was considerably thicker, but soft, the os tincæ patulous, and covered with small granulations. By the double touch, the entire organ appeared to be enlarged, and of a more spherical form than usual, painful even upon gentle pressure; left ovary considerably enlarged, and very painful. By examining through the rectum, a pretty large section of the posterior surface of the womb could be circumscribed, and in this way it

was ascertained that a hard, flat tumor, of considerable size, was imbedded in the uterine tissue. The probe passed easily into the cavity, and could be advanced three inches, thus giving a hypertrophy of one inch in length. The results thus obtained, together with the patient's account of her ailings, induced me to assume that I had to deal with a fibrous growth in the uterine tissue, or a simple uterine polypus, protruding into its cavity. In order to make sure of the diagnosis, and as a preparatory step for treatment, I proceeded to enlarge the uterine cavity, by means of compresed sponge tents.

First, a sponge of small circumference, one inch and a half long, was introduced, and left there for about eight hours; a time sufficient for its perfect softening and expansion. Immediately after its removal, a second sponge was introduced sufficiently long, nearly to touch the fundus uteri, and left there over night. I was now enabled to pass my forefinger almost its entire length into the cavity of the womb, so that I was enabled to examine its entire inner surface. No polypus could be detected, the mucous membrane seemed to be not perfectly smooth, perhaps, owing to the influence of the irregular surface of the sponge, which stuck very fast to it in every direction, when it was withdrawn. While thus examining the womb, there was a feeling as if the posterior wall protruded to a great extent, and as if a large hard body was situated behind the thickened lining membrane. This examination excluded the diagnosis of polypus uteri, verifying that of interstitial fibroid tumor. I now proceeded to introduce a glass-speculum into the vagina, and through it a syringe, which contained the liquor ferri sesquichlorati mixed with equal parts of water, making altogether about half an ounce. The mouthpiece being advanced up to the fundus uteri, its contents were emptied into the womb, and almost instantly rejected into the vagina. I took care not to remove the speculum as long as a drop of the solution came away from the os uteri. The first symptom was a burning sensation in the vagina, which was owing to a portion of the injected fluid, which came in contact with the vagina, when the speculum was withdrawn. The injection was made at eleven o'clock, A.M., April 30, 1858. When I saw the patient in the evening, she seemed to be much prostrated, always complaining of the soreness above-mentioned, and a dull pain in the lower part of the stomach, which corresponded with the uterus. I ordered cooling injections into the vagina, and a few doses of acetate of morphia. On the following day, her condition was not much changed; the sore spot less noticed; pains in the stomach increased; sensation of nausea; continued morphia. Third day; so low that she was scarcely able to

move or speak; pain in the uterine region increased by the slightest touch; abdomen very slightly swollen; ordered stimulant drinks, opium with camphor. In the evening about the same; complained of headache and giddiness; pulse about 130; very feeble; abdominal pains not remarkably increased. Fourth day: very much prostrated; her family think she cannot live much longer; pulse scarcely perceptible; skin cold; constant nausea; no change in local symptoms; ordered brandy and quinine. Sixth day: feels a little stronger; pulse somewhat stronger; treatment continued. Seventh day: slowly improving; remarked a few drops of a watery discharge from the vagina. With returning irritability, the pain around the uterus is more acutely perceived, and I therefore had a blister applied above the pubic region, as soon as I considered her strong enough to bear all the pain and trouble connected with the dressing a blister. Recovery proceeded very slowly, and not without one or two alarming relapses, which threatened to carry her off. The discharge above mentioned continued for eight weeks, when she had, for the first time, a small flux of blood which lasted for five days. It was not before ten weeks from the day the injection was made, that she was strong enough to leave her bed, and then, only for a few hours at a time. One month after the first show, she had another discharge of blood which continued six days, but did not make an unfavorable impression upon the state of her health. At the end of August, 1858, she was able to leave her house to be removed to the country, where she gained strength considerably, and in a comparatively short time. Her menses appeared every fourth week regularly, diminishing in quantity on every succeeding turn, so that from October last, she professed to have her courses as regular, and in that quantity which every healthy woman ought to have.

Case 3.—Injection of a caustic solution into the uterus;—Severe metro-peritonitis—Recovery.—Mrs. K——, of Seventh Avenue, called at my office to be treated for fluor albus, of which she had complained ever since the birth of her last child, which was now about two years old. She had been attended by several physicians, who prescribed internal remedies and astringent injections; but all to no avail, for as soon as she stopped using the syringe, the white discharge came on in undiminished quantity. Latterly, her courses had become very scanty, her strength began to give way, and she was constantly tormented by a pain in the small of her back. Upon examination, I found the vagina covered with a copious, thick, semi-transparent fluid, the uterus in its normal position, slightly sensible to the touch, very little hypertrophied, mouth

somewhat open, its surface not quite smooth, both lips covered with red granulations, and bathed in a muco-purulent secretion from the cavity of the womb. This was no doubt a fair specimen of catarrhus uteri, and a caustic application to the diseased surface seemed to be the very thing that was required, as the only safe means of effecting a permanent cure. I, therefore, introduced the mouthpiece of an india-rubber syringe with long pipe, containing a few drops of a solution of one part of nitrate of silver to four parts of water, into the mouth of the uterus, and emptied the contents of the syringe very slowly into the womb. Most of the fluid returned immediately, and I am sure that the end of the syringe entered not further than one inch into the cervical canal.

When the patient stepped from the lounge she had to sit down quickly upon a chair, because of a transient sensation of fainting. This was at three o'clock, P.M., and about six o'clock I was called in haste to see her at her residence. I found her very low and uneasy, vomiting incessantly, and complaining of pain in her head. I learned that a few minutes after leaving my office she began to vomit, and continued to vomit to the time of my visit. There was besides, a dull pain both around the left ovarian and the pubic region, which increased on pressure with my hands; still the abdomen was not tense or swollen; pulse feeble, about one hundred strokes in a minute. I ordered Magendie's solution dissolved in potio Riveri, and linseed poltices to be applied to the painful spot. She passed a very uncomfortable night, feeling as if she was always near fainting, and vomiting as soon as she took the least drink. I found her on the following day very low and pale, so much that I felt alarmed about her condition, pulse one hundred and thirty, feeble, pain in the region of the womb increased. Ordered a large blister and powerful doses of opium with camphor, small pieces to be taken when she felt thirsty. Towards evening she was under the influence of the drug and felt somewhat easier. On third day, the vomiting had almost entirely ceased, but she did not dare to lift up her head, fearful of increasing the sensation of giddiness which she had experienced from the very first day of her sickness. The pain in the lower part of the stomach not increased, pulse falling. All the while not the least show of a secretion from the vagina was remarked. On the following days her condition was even more satisfactory, especially on the sixth day, when a flux of clear, bright blood had suddenly made its appearance. The blister was now permitted to dry up, and the patient was able to leave her bed on the tenth day from the time of the caustic application.

Case 4.—*Application of a solution of nitrate of silver to th*

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inner surface of the womb—Death on the sixth day.—Mrs. U ——, of Sixth Avenue, a slender woman of light complexion and an irritable disposition. When I saw her first (September 1856), I was called to attend her for the "whites" and "pains in the small of her back." Of her history I learned briefly that she was married about seven years ago to a man, who not only neglected her, but whom she suspected of having intercourse with prostitutes, from the fact of her having contracted a venereal disease, for which she could not account in any other way. Upon being questioned, she admitted that her disease might have been communicated to her by her husband. Although she was not able to trace the exact time when she began to suffer, she had been ill for one and a half or two years. The discharge of which she complained was at first very little and thick, becoming more profuse, watery, and somewhat offensive of late. This circumstance, connected with her growing daily thinner and weaker, induced her to seek medical advice, and she readily submitted to a thorough examination. The vulva and vagina were bathed in a serous, greenish, offensive fluid, and consequently were red and irritated. Upon examining the uterus with the finger, it was found that about two-thirds of the vaginal portion were gone, and what little remained, the seat of an irregular ulceration which extended far into the cavity of the neck. This part was laid open to view by means of a speculum. The surface thus exposed was of a dirty greyish color, with irregular, sharp cut protuberances, limited by a jagged margin which, towards the right side, embraced part of the laquear vaginæ. A small particle was taken away from this diseased spot for microscopical examination. It was afterwards found to consist of nothing but the natural elements of cervical portion, areolar tissue, and fibres of organic muscles, all of which were in a state of disintegration, presenting a granulated appearance, as if interspersed with molecular (fatty) corpuscula.

Diagnosis—Ulcus corrodens portionis vaginalis e causa syphilitica.

Treatment.—We are of opinion that most, if not all, the corrosive ulcers of the vaginal portions are chancres in a phagedænic state; we further believe, that the phagedænic chancre is a variety of the soft chancre, thus demanding no general anti-syphilitic but chiefly a local treatment. In this instance, at least, there could be no doubt about the nature of the disease, and never had any secondary symptoms occurred. On September 15th, the actual cautery was applied. An olive-shaped iron was heated white and brought in contact with the entire surface as far as it was diseased, and even passed into the

cavity of the neck for a considerable distance. The pain experienced during the operation was trifling, and the patient rose from the table, where she was placed, and walked to her bed as if nothing had happened. The reaction which followed was insignificant, the pulse rising not above ninety strokes in the minute; the discharge diminished in quantity and quality, being less offensive and of a better color. The patient was ordered to take a strong decoction of bark and rich food, under which treatment she seemed to recover some strength. Ten days after the cauterization she was examined again, and the affected portion seemed to be in a fair way towards healing; instead of the ragged, pale surface, I found a fresh looking wound, partly covered with red granulations. Still some small spots were left, exhibiting traces of the old disease. I, therefore, thought it necessary to continue cauterization, though on a less active plan. Nitrate of silver seemed to be all that could be desired, and I dissolved a drachm in an ounce of water to be used for local application. The patient, therefore, was again placed on a table, the speculum again introduced, and a small camel-hair brush soaked in the solution just mentioned was applied to the ulceration. The place which had the most unhealthy aspect was that situated in the centre of the os tincæ, and thinking that the corrosion might have spread far into the neck, I introduced the brush into the cervical canal as far as I thought proper, but certainly not more than one inch or one and a half. When the patient was brought to bed, she remarked that the pain from this application was as great, if not worse, than that of the first one. Still she did not seem to have any alarming symptoms about her. When I saw her on the following day, there was a change in her expression; her features were not as lively as before; she felt very weak and complained of a pain in the lower part of her stomach. This pain she had felt coming on gradually ever since the operation, and upon closer examination it could be ascertained that its seat was in the womb itself; the discharge had entirely ceased, her skin was hot but moist, pulse about one hundred and ten in a minute. I was at a loss to determine the cause of these symptoms, considering it singular that the milder caustic should produce more serious symptoms than the stronger one. I ordered her to take the extract of hyosciamus in an emulsion of castor-oil, and warm poultices to be applied to her stomach. The two days following, she was much the same, and, therefore, she continued the hyosciamus and the poultices. On the fourth day she was rather worse; abdomen very painful and somewhat swollen; small doses of opium administered. On the night following, she was very restless, speaking as if in deli-

rium, constantly grasping her stomach. On the fifth day, I found her fully prostrated, with a clammy sweat, a small, fluttering pulse, and only half conscious. I gave up all hopes of recovery, but ordered large doses of musk, which seemed to revive her, but only for a short time. Towards night she sank rapidly, and died about three o'clock, A.M., of the following day. No post-mortem examination allowed. Although no autopsy was made in this case, it is clear that the woman died from metro-peritonitis induced by application of a caustic solution to the inner surface of the womb. After the first application of the heated iron she was was in a fair way of recovery, as well with regard to the consideration of the local disease, as to that of her general system; she had begun to walk around the house, and had altogether a brighter look than before. But as soon as the nitrate of silver was used, she was suddenly and unexpectedly taken ill, with symptoms of metro-peritonitis, from which she ultimately died. Although at first I was not inclined to attribute the sudden change in the health of the patient to the caustic, I was at last forced to consider this application as the only cause of the inflammation of the womb and appendages, and I believe that every unprejudiced reader will agree in this explanation of the facts.

ART. III.—*The Sanitary and Dietetic Laws of the Hebrews, as related to Medicine: A paper read before the N. Y. Medical Union, Feb.* 24, 1859. By MARK BLUMENTHAL, M.D. Resident Physician to the Jews' Hospital, N.Y.

GENTLEMEN: I appear before you this evening at the suggestion and request of some of my most highly esteemed friends and colleagues to occupy your attention for an hour in referring to, and explaining the Sanitary and dietetic Laws of the Hebrews, and their relation to Medicine. The desire to be informed, in some measure at least, in regard to the peculiarities of this people, and to know to what extent their Religious laws inculcate certain doctrines pertaining to food etc., is certainly laudable, and peculiarly interesting, even if not absolutely necessary to the physicians of this city, where the Israelites form a large and respectable part of the community, and among whom every practising physician has patients—in order (as a worthy friend expressed it), "to direct him in his conduct and advice, when treating a Hebrew—so that he may do nothing to hurt his patient's religious feelings, nor desire him to do anything contrary to the peculiar requirements of his religion." All honor to such high-minded motives; I feel happy in being enabled, though in ever so small a measure, to

encourage this sentiment of toleration and liberality, which redounds no less to the honor of a good heart than a strong mind.

The subject, however, is one to which it is impossible to do full justice in the short time allowed me this evening, and it will therefore be barely possible for me to touch upon the most important ordinances or rather those which become of interest to the physician in his relation towards his patients. It may be urged by some, that they have seldom or never found any difficulties on this score; that they have for years attended Jewish families and do so still, without ever suffering, or even feeling the want of any more intimate knowledge of the peculiar religious or sanitary doctrines of their patients. This no doubt is true; but do or can these querists, conclude, from the fact that they have never been called to account, that *therefore* they have never offended their patients' religious convictions? Or are they sure that they have not induced their Jewish patients to commit acts contrary to their religious rites? The commission of which may perhaps have preyed at times upon their consciences and have caused them pangs of regret. But granted that such seldom occurs—would not every conscientious physician and gentleman of education and refined feelings prefer, not to take the responsibility of ordering anything forbidden, or wittingly to wound the feelings of any one? Certainly he would; and it is to these I offer the following remarks.

The customs of the Israelites at the present day, are altogether based upon the Biblical laws contained in the Pentateuch. They are of a religious nature; because they are conducive to the health and happiness of man. In fact, the preservation of health, corporeal and mental, being a religious duty among the Hebrews, all the regulations conducive to that object, become a part of their religion. It is in this sense that Moses says: (Deut. v. 33) "Ye shall walk in all the ways which the Lord your God hath commanded you, that you may live and it may be well with you *and that you may prolong your days.*" Many more passages might be quoted to prove that the tendency of the religious laws is conducive to the physical and spiritual welfare, the vigor of mind, and strength of body of the Israelites. It is consequently an admitted rule, that whenever a physician considers it absolutely necessary for the preservation of life, or the attainment of health, that any of the religious observances should be infringed, his advice is to be followed. Medical men however are recommended not to interfere unnecessarily with the established customs, unless they believe it really indispensable for the recovery of their patients;

thus leaving the decision in a great measure to the sense of honor and the amount of conscientious scruples of the attendant.

That the restrictions imposed upon the Israelites by their religion were, and still are, wise and useful, and conducive in the highest degree to the preservation of health, might be proven by a number of well-known and universally accredited facts. Thus they are remarkably exempt from the epidemic diseases which have from time to time swept over the earth and made such sad havoc among other nations. Scurvy and tapeworm are almost unknown among them and even syphilis is much less prevalent than among other nationalities. This comparative immunity is so well demonstrated that the Board of Health of Great Britain, in its report on the cholera prevailing there a few years ago, devotes a chapter to the elucidation of this remarkable fact, which is ascribed by it to the sanitary and religious laws which are observed by the Hebrews. It adds, that the same immunity prevails also in other countries among them, of which the report makes mention.

One more fact may be mentioned in this connection. During the dark ages, the Israelites, if at all tolerated, were compelled to live in the most crowded state and confined to the lowest localities in the various cities of Europe, under conditions undoubtedly every way favorable to the production of miasm, fever and pestilence. They nevertheless preserved their innate vigor of body and mind as their history, as well as their present state abundantly testifies. Having made these general and introductory remarks, I shall proceed to take up some of the special peculiarities, and whilst stating their existence, give at the same time such explanations for their existence as may seem satisfactory. I allude to this point more particularly and with emphasis—because the conviction is, it may be said all but universal among Christians, that their customs and prohibitions (particularly those in regard to articles of food and their mode of preparation) are ridiculous, and preposterous; and not only lacking the semblance of divine wisdom, but not even founded on common sense.

Gentlemen! nothing can be further from the truth. . . . Most of the ordinances have reasons assigned for their injunction; *why* certain articles are injurious and therefore forbidden, and where such reasons are not actualy put down, a little research or study of the peculiarities of the circumstances and times under which they were ordained, will usually satisfy all impartial minds of their wisdom and necessity.

In many instances modern science has corroborated what was told us over three thousand years ago (a striking illustration of

the slow progress of the human mind as contrasted with divine wisdom and inspiration) and it is consequently doubly interesting to find boards of health and special commissions appointed at the present day,* to ascertain facts and recommend precautions identical with those ordained more than 30 centuries ago, by that great, unequalled legislator, Moses.

In elucidation of these statements, let us examine the ordinances of diet separately.

The Mosaic code divides all animals into two great classes, clean and unclean. The clean are declared to be useful and healthy as an article of food, but the unclean are forbidden. A more definite distinction, however, is superadded. In Levit. ii. 5, we read a list of the animals that are allowed and of those that are prohibited, "Whichsoever is cloven-footed and cheweth the cud, that shall ye eat." "Thus," says the Revd. John Townley (in his dissertation on the originality of the *Inst. of Moses.—Transl. More Nebochim*, p. 56. (Doctor Perplexorum) "Religion directed the choice of proper articles of food both with the heathen and the Hebrews; but with the latter the most wholesome food was allowed, and nothing was forbidden for any reason which tended to nourish superstition. But no good reason can be given for the Egyptians abstaining from mutton; the Syrians from fish; the Hindoos from the flesh of cows, or the priests in some countries from the flesh of animals of any kind." The same author furthermore says, (Townley, p. 64) "Various reasons have been adduced for the legal distinction between clean and unclean animals, by those learned men who have made this part of the Jewish polity their peculiar study." It will be found by the candid investigator that there are some great and leading reasons for these dietetic distinctions, in which all the best writers are agreed and which we may therefore safely consider as sound and Scriptural as well as rational. The sum of these is that these distinctions were intended,

1, To prevent idolatry; 2, To promote the health and comfort of the people; and 3, To influence the *moral character* of the nation."

We will not stop to discuss at length the various ways by which the prohibitions of certain articles of diet affected the religious sentiments of the people, but simply point out one or two considerations which force themselves upon the mind.

The Hebrew nation had been chosen as a holy people, that was to be specially dedicated to the service of God; hence all means that would tend to produce or inspire idolatrous notions were to be carefully avoided, nay—even means were to be

* As in England—see London *Lancet*, 1858.

employed to convince the people of the folly of worshipping different animals. How was this accomplished? In the first place by *permitting the use as food of such as were adored by the Egyptians* (a nation whose habits they had from long association partly acquired) and certainly it was not very likely that Israelites would regard with veneration animals which they were daily in the habit of eating.

In the second place, by *being taught to regard with detestation such others as were held in religious veneration by the idolatrous nations.*

"Most of the creatures" (says the erudite Lewis, "Antiquities of the Heb. Republic") "which were pronounced unclean were such as were in high esteem and sacred among the heathen—as a swine to Venus, the owl to Minerva, the hawk to Apollo, the eagle to Jupiter and even the dog to Hecate—which gave occasion to Origen justly to fall into admiration of the wisdom of Moses, who so perfectly understood the nature of all animals and what relations they had to demons, that he declared all those to be unclean which were declared by the Egyptians and other nations to be instruments of divination and those to be clean which were not so." (Origen contra Celsum, lib. iv.)

Again,* "It is well known that the lion, wolf, dog, cat, ape and even frogs, rats, otters, beetles and flies as well as serpents and fishes, were held in idolatrous veneration by the Egyptians and other nations, and for which they were satirized by Juvenal—himself a pagan Roman.

The restrictions which were made with respect to diet had also another object. Owing to the disparity of tastes and customs engendered thereby, the people could not eat with their idolatrous neighbors, thus cutting off to a great extent social and familiar intercourse and preventing matrimonial alliances; in that way also evading the temptation to be led astray from the worship of the true God—a consideration, it must be conceded, of much importance when we remember that the Hebrew nation was then the only one not borne down by idolatry and destined to spread the true knowledge of God and his attributes.

We all know how often prejudices and preconceived ideas and resolutions not only *are removed* by intimate associations with different nations, and with people holding different opinions; but moreover how our religious convictions are sometimes weakened when we are not thoroughly and perfectly grounded in the principles of their truth and reliability. How much

* Townley, p. 66.

more is such companionship to be feared when the happiness of a people is involved just delivered from slavery and as yet but little used to liberty and independence of thought and action; a people that had lived for centuries amongst idolaters and thereby became in a measure reconciled to the follies of the Egyptian worship. The probability of such a state of the public mind is rendered more plausible by the fact, that the Hebrews saw their oppressors, though idolaters, seated upon the very pinnacle of fame and worldly prosperity. Judging from effect to cause, it would naturally mislead them, and hence the necessity of those various wonders and miracles wrought before and during the delivery of the Hebrews to convince them of the existence of an overruling Providence against whom the false gods of Egypt were powerless.

But I must hasten to the second reason given for these dietetic prohibitions, viz., "to promote health and comfort." The distinctions between clean and unclean appears to be based almost entirely upon their respective suitability or unfitness as articles of food. "While God keeps the eternal interests of man steadily in view," observes the learned Dr. Adam Clark in his commentary on the Bible (on Levit. xi.) " he does not forget his earthly comfort; he is at once solicitous both for the health of his body and his soul. He has not forbidden certain aliments because he is a Sovereign, but because he knew they would be injurious to the health and morals of his people. Solid footed animals, such as the horse, and many-toed animals, such as the cat, are here prohibited. Beasts which have bifid or cloven hoofs, such as the ox, are considered as proper for food and therefore commanded. The former are unclean, *i. e.* unwholesome, affording a gross nutriment, often the parent of scorbutic and scrofulous disorders; the latter clean, *i. e.* affording a copious and wholesome nutriment and not laying the foundation of any disease. Ruminating animals, *i. e.* those which chew the cud, concoct their food better than the others (which swallow it with little mastication), and therefore the flesh contains more of the nutritious juices, and is more easy of digestion and consequently of assimilation to the fluids and solids of the human body; on this account they are termed clean, *i. e.* peculiarly wholesome and fit for food. The animals which do not ruminate do not concoct their food so well, and hence they abound with gross animals juices, which yield a comparatively unwholesome food to the human system. On the same grounds he forbad all fishes that have not both fins and scales, such as the conger eel, etc., which abound in gross juices and fat which very few stomachs are able to digest." Mons. de Pastoret (Moyse, considéré comme législateur et comme moraliste, chap. vii. p. 528.

Paris 1788), a celebrated French writer says: "One of the most distinguishing traits in the character of Moses as a legislator and one in which he was the most imitated by those who in after ages gave laws to the eastern world, was his constant attention to the health of the people. He forbad the use of pork and of the hare etc.; of fish without scales whose flesh is gross and oily, and all kinds of heavy meats as the fat of the bullock, of the kid and of the lamb; an inhibition supremely wise in a country where the excessive heat relaxing the fibres of the stomach, rendered digestion peculiarly slow and difficult." It is a remarkable fact and one certainly worthy of a passing notice that with the exception of the swine, none of the animals forbidden in the Mosaic code have become or are at the present day articles of common diet among civilized nations, and even with regard to this exception modern research is gradually laboring in a direction corroborative of the wisdom of the interdiction. At the present day, pork is considered as by no means easy of digestion, and the fact of its being so very frequently the possessor and habitation of the Cysticercus (which the interesting researches of Kuchenmeister, Von Siebold, Leuckart, Walther and others have proven to be rudimentary tapeworms), does certainly not tend to raise its value in the eyes of humanitarians. Indeed pork is without doubt the most frequent means by which this parasite is carried into the human body—there becoming developed to the great suffering and injury of the human organism.* Here then would seem to be a very palpable reason for placing the swine among the unclean animals, and the fact that tapeworm is almost unknown among the Hebrews goes towards justifying in a remarkable degree their abstinence.

In making dietetic use of the animals declared as wholesome, there are some peculiarities which I shall now proceed to mention.

The method of killing animals for food differs widely from that followed by other nations. Thus whilst death is produced in a bullock, for instance, even among the most civilized nations, by a blow upon the head, or in case of a calf or lamb by stabbing, the Hebrews have a certain method to pursue; and more than that, they have certain men appointed to do this duty. Instead of felling the animal with a blow producing concussion or compression of the brain, as the case may be, and thereby sudden stoppage of the heart's action, thus leaving the blood in the heart, arteries and veins, *the throat is cut* with a large keen-

* The mere allusion to the occurrence of the cysticercus cellulosus, in the brain, globe of the eye, heart, liver and muscles is sufficient to indicate that it may be of serious and sometimes fatal consequence.

edged knife, specially designated for such use and kept very sharp, thus severing the cervical arteries and veins and producing death by hemorrhage. The blood is thus discharged, as its use is interdicted in Levit. xvii. 22: "No soul of you shall eat blood, neither shall any stranger that sojourneth among you eat blood." And in Deut. xv. 23: "Thou shalt pour it upon the ground as water."

The reason for this prohibition I shall revert to presently.

And now comes that part of the process to which my allusions above when mentioning the Board of Health had reference. After the animal is killed (and I need hardly say that one evidently sick can not be killed for food) its internal organs are examined, especially the heart, the liver and lungs, the latter among other tests are inflated in order to discover whether the vesicles or air cells are all permeable; thus tubercles, emphysema, pneumonia, etc., are discovered. The intestines, too, must be examined for ulcerations, and the abdominal organs, such as the kidneys, spleen and mesenteric glands, and if the slightest traces of disease are found, the meat is declared unfit for food. Of course the person upon whom the duty of this examination devolves must be thoroughly acquainted with the anatomy and pathology of cattle. To prove his capacity he must pass an examination. Until he has declared the animal as healthy, its meat must not be sold for food.

Thus far then it would seem as though every necessary precaution had been taken; but before the meat is ready for cooking it undergoes still other processes. It is laid upon a board and sprinkled with salt in moderate quantity; after remaining so for 30 minutes it is washed and laid in water so as to dissolve and remove the salt. This process it is evident is simply a completion of the first step, namely to abstract all the blood before eating the meat.

As a logical consequence of the foregoing, no animal, whether mammal or fowl or fish, may be used that has perished by violence, whether such violence be caused by animals of prey, by accidents or by shooting. The products of the chase, therefore, are prohibited.

I am sure that many will coincide with me when I express my regret that some sanitary supervision, even if not so complete in all its parts as the foregoing, is not *universally* adopted. Its necessity is undeniable. Meat of all kinds is offered in our markets. No one has a legal right to examine (or if there be such ordinances we never knew them enforced) if it be pure and wholesome and to confiscate it if otherwise. It is a notorious fact that diseased animals are often slain, (just on the point of perishing from disease) both in the city and country, in

order to dispose of the meat, when the living animal could no longer have found a buyer. How much disease may be ascribed to such unhealthy food it may be difficult to ascertain, but that such meat must necessarily be injurious and prejudicial to health may be confidently assumed.

The question will naturally present itself—why is blood so specially interdicted and so studiously and perseveringly sought to be avoided by the Hebrews.

Various reasons have been given for this prohibition by the learned Rabbis or doctors of ancient times. Moses Maimonides, who flourished during the latter half of the 12th century, and who is regarded not alone by his own nation, but by the learned of all creeds, as one of the brightest luminaries of his age, and probably the best informed man of his time upon the subject of the laws of Israel and the reasons thereof—after stating the abominations, cruelties and idolatrous practices to which the nations surrounding Israel at that time were addicted by reason of the blood which they used as food, or gathered in order to offer to demons, says (ch. xxi. on the Causes and Reasons of Precepts of the Eleventh Class): "For this reason, therefore, the divine law, which renders those who know it perfect, was given to eradicate those inveterate diseases, by prohibiting the eating of blood, and as in the case of idolatry, enforcing the prohibition by an additional sanction."

One of the principal reasons for prohibiting the eating of blood was then without doubt to prevent idolatrous practices. Rabbi Moses bar Nachman (better known as Ramban), also a very learned Spanish Israelite, who was born in 1194, and who like unto Maimonides and others united with a profound knowledge of religion, a knowledge of jurisprudence and physic, says of those idolatrous nations surrounding Israel, "They gathered together blood, for the devils, their idle gods, and then came themselves and ate of that blood."—*Townley More Neb.* p. 76.

Similar practices obtained among the Romans, since Horace thus satirizes the superstitious rites of his countrymen:

> "Canidia with dishevelled hair,
> (Black was her robe—her feet were bare—)
> With Sagana—infernal dame—
> Her elder sister—hither came.
> With yellings dire they filled the place,
> And hideous pale was either's face.
> Soon with their nails they scraped the ground,
> And filled a magic trench profound—
> With a black lamb's thick streaming gore,
> Whose members with their teeth they tore.
> That they may charm the sprites to tell
> Some curious anecdotes from hell."
>
> FRANCIS'S *Horace*, Sat. 1, B. I.

The second reason why blood was not to be eaten, appears to have been that the Israelites might by this means be deeply impressed with the important truth that God is the sole author and disposer of life; and thereby maintaining a constant sense of dependence upon him, and of gratitude for his providential mercies.

The learned Calmet says, "God reserved to himself the blood of all sacrifices—as absolute master of life and death." "Blood being regarded as the organ of life, was therefore sacred to him from whom life was derived."* "For blood is the life, and thou mayest not eat the life with the flesh."—Deut. xii. 23, 24; Levit. xvii. 10–14.

A third, and perhaps the most interesting and important reason to the physician, is that the prohibition of blood served to check cruel and savage customs, and prevented the unrestrained indulgence of barbarous and ferocious inclinations. The Jewish rabbins assert that the injunctions against the use of blood were originally designated to suppress a practice, which they say obtained even in the time of Noah, of eating raw flesh, and especially of eating the flesh cut or torn from living animals, and devouring it whilst yet reeking with warm blood. † Plutarch, in his discourse on eating flesh, informs us, that it was customary in his time to run red hot spits through the bodies of live swine; and to stamp upon the udders of sows ready to farrow, to make their flesh more delicious; and Herodotus assures us (b. iv.) that the Scythians, from drinking the blood of their cattle, proceeded to drink the blood of their enemies. Dr. Patrick Delaney ‡ says, "There is a practice sufficiently known to obtain among the poor of the kingdom of Ireland. It is customary for them to bleed their cattle for food in years of scarcity;" and as a proof that these barbarous customs have scarcely yet ceased, the Analytical Review (vol. xxviii. July, 1798), says: "It will scarcely appear credible at a future time, that at this day, towards the close of the 18th century, in the islands and some of the Highlands of Scotland, the natives, every spring or summer, attack the bullocks with lances, that they may eat their blood, but prepared by fire." The celebrated traveller Bruce relates a scene he witnessed near Axum, the ancient capital of Abyssinia, where the Abyssinian travellers whom he overtook, seized the cow they were driving, threw it down, and cutting steaks from her, ate them raw *and then drove on the poor sufferer before them.* (Bruce's "Travels," vol. iii. pp. 332, 334). Sir John Carr states that the natives of the Sandy desert (between Memel and Koningsburg) eat live eels

* Townley, p. 78. † Townley's Trans., p. 80.
‡ Doctrine of abstinence from blood defended, London 1734.

dipped in salt, which they devour as they writhe with anguish round their hands. (Can's "North Summer, or Travels round the Baltic in 1804," p. 436, Lond. 1805.) And it is a well known fact that the savage natives of New Zealand continue to quaff the blood of their enemies when taken in battle.

It is to prevent such cruel and barbarous customs that the Jewish law enjoined, that animals destined for food should be killed with the greatest dispatch, and their blood poured out upon the ground and not eaten. Thus, unnecessary cruelty to animals is evaded, and the deleterious effects of blood as an article of food avoided. For it is certain that all animals feeding on blood are more furious and violent than the ruminantia, and it can hardly be a matter of doubt, that its use by man tends to brutalize him—to arouse his more violent passions and brutal instincts—making him cruel and unrelenting, whilst the better feelings and emotions, for want of cultivation and practice, are sunk under the weight and force of his animal passions.

"Drinking of blood," says Michaelis in his "Commentaries on the Laws of Moses," vol. iii. p. 252, "is certainly not a becoming ceremony in religious worship; it is not a very refined custom, and if often repeated might probably habituate a people to cruelty and make them unfeeling with regard to blood; and certainly religion should not give, nor even have the appearance of giving, such a direction to the manners of a nation."

There is one other point under this heading that may receive a hasty notice. Israelites who live strictly in accordance with their faith, never combine at one meal meats with milk or butter. This observance is based upon the verse in Exod. xxiii. 19, and Deut. xiv. 21: ("Thou shalt not seethe a kid in its mother's milk.") No kind of meat or fowl can consequently be boiled in milk or fried in butter. Instead of the latter, other fats are used—particularly the fat of geese; and in countries where olives abound, as in France, Italy, Spain and Turkey, olive oil is used almost exclusively to replace fats in the cuisine.

Of fowls it may be said in general terms that all birds of prey are interdicted; and of fishes—all that are not possessed of scales and fins are prohibited. All animals living in the water and not possessing these are forbidden—hence oysters, shrimps, lobsters, crabs, eels, cockles, etc., should not be eaten. The reasons given above as causes for the prohibition of meats of difficult assimilation, appear to apply also here.

In contrast with these laws on food, let me here introduce the ordinances on abstinence.

One day in the year, called the day of Atonement, is set

apart by the law and generally observed as a fast-day. From evening to evening, every Hebrew abstains from food and is engaged with acts of penitence and prayer. But though this command is general (Levit. xxiii. 27–30) it is understood to apply only to adults in health.

Thus, boys under 13, and girls under 12 years of age (the ages when they are respectively said to become responsible), are exempted therefrom. Indeed if children under that age even desire to abstain all day (*i. e.* 24 hours), they are not permitted to do so.

The humanitarian spirit of the ordinance goes even farther. Thus, a woman is not permitted to fast during the first three days after her accouchement. After that period it depends upon her state of health. Should it be considered prejudicial to her or her infant, she must not be allowed to fast.

In cases of sickness or debility from disease or even age, the command is not to be enforced. In fact whenever the physician declares that it is dangerous to life or even specially prejucial to restoration, his advice or order—supposing it to be based upon his honest convictions and not prejudice—is to be followed.

It is perhaps necessary I should mention that by fasting, the Hebrews understand abstinence from drink as well as from food.

Let us next look at the laws of cleanliness.

Purity of body as well as of mind and heart, is one of the cardinal principles laid down in the Old Testament. Bathing and washing are frequently commanded, and hence we find that in the description of the temple of Solomon, the lavers for bathing are frequently and repeatedly mentioned. Let us remember that these ordinances were given long before advancing civilization and science had taught the world the supreme excellences of water, and that its frequent employment must have contributed in no small degree to the sanitary condition of the people. Indeed the habit of washing and cleansing the body had become so impressed into the national character that it has descended to our generation as a religious custom; and well it might; for the preservation of health, and thereby of life, is certainly an essentially religious duty. To what *extent* this habit of frequent lavations has tended to preserve health it is impossible to ascertain, since other hygienic means were in common use at the same time, but I believe it only fair to presume, that it was not without its good effects.

The ancients practised, and even the modern oriental nations to this day preserve, the laws and habits of frequent bathing and washing. The frequency of eruptive and skin diseases, rendered

such custom especially applicable, and in order to enforce it the better it was made with most of them a religious ordinance.

When, therefore, we recollect that these laws were more especially made for Palestine, situated in a hot climate, though equally adapted to other lands, they strike us as eminently wise. The fact that many of the secretory and excretory organs act more energetically in hot than in temperate and cold climates—particularly the skin, and that this excretion, especially when occupying the feet, is very often exceedingly offensive—is so well known as to require only its simple mention to remind us of the benefits of bathing. Manufactures and commerce had not then reached that universality which they now enjoy, and it is fair to assume that the mass of the people could not or would not supply themselves with such an abundant supply and change of garments, as is common in our day. Frequent ablutions, therefore, became the more necessary, both of body and garment. Indeed, we all know that the admiration of water by the civilized world has in modern times so strengthened and grown that a school has arisen, namely, the Hydropathic, which claims to cure all diseases to which the human frame is liable—by water. Those however (with but few exceptions perhaps) who have studied the human economy, its anatomy, physiology and pathology with care, and have devoted strong intellect and life-long application to its diseases, though admitting its great utility and good qualities, deny, and in my opinion deny with justice, the extravagant eulogia bestowed by specialists upon water as a remedy. The Rational School of Medicine of the present day, which may be termed the eclectic, or better, perhaps, the school based on our knowledge of the natural laws, physiological facts and clinical observation, is ready and willing to give water its proper place in the class of remedial agents, and frequently indeed, I hardly dare say frequently enough, is it employed in congestive and inflammatory diseases not only, but in its different states and forms as a positive remedial agent for diseases of the skin, rheumatic and gouty affections, and chronic diseases of internal organs.

The vapor, the douche, spout and the sand baths are proofs, (from their very existence), of the extensive application to which water is now put.

At this day, no man or woman in Israel commences his or her day's labor without first washing hands and face, at least; indeed it may be said that not even a child is left unwashed every morning among them; (for as persons are considered unclean until washed, and as it is not permitted to offer up

prayers to Providence unless clean (and to pray daily is as usual among them, even among the poor class, as it is uncommon among the same class of some other sects) washing has become a part of their religious rites. Thus when going to meals also, hands are cleansed, with the double object of cleanliness, and as preparatory to saying grace thereafter.

During the independent nationality of Israel more particularly, but even now also, bathing was obligatory after any disease of the skin, after sexual intercourse or even pollutions; after the cure of a gonorrhœa, after the menses, an accouchment, or the touching of a corpse. Not only was it customary to bathe in rivers, but wealthy families, even then, had baths in their houses. 2 Sam. ii. 2; (Wund. Talm. Med. p. 37). Thus both hot and cold as well as vapor baths were used. A point of interest however is, that even at that early day (I refer to the time of the glory of Jerusalem), the method now pursued in the so-called Russian baths was employed, namely the dashing of cold water over the bather immediately on emerging from a warm bath. Thus the Talmud in its allegorical style says: "He who takes a warm bath and is not directly after showered with cold water, is like unto iron, which has been treated by fire, but not hardened by water afterwards." Let me include under this heading one other important ceremonial law relating to the sexes. I allude to the operation of circumcision.

This command laid down by the patriarch Abraham (in Gen. xvii. 10–13.) and reënacted by Joshua upon the whole nation of males born in the desert on their way from Egypt to the Holy Land, has been adhered to by his descendants, the whole people of Israel, even unto this day.

It is foreign to our purpose this evening, however, to look upon the ordinance in its religious bearings; it is in its sanitary relations that it has interest in this connection, and as the first step in its elucidation, I will proceed first to describe the operation as performed by persons who are specially educated in its manipulations.

All anatomists know that the integumentary tissue covering the penis is very elastic and distensible, and that it naturally passes forwards over the glans penis, entirely covering it, just leaving in the central point a corrugated opening, through which the urine escapes, and being then reflected back as mucous membrane *under* the first layer and *over* the glans to its corona, where it is circularly inserted.

In circumcising (the tissues as already mentioned being very elastic and loose) the entire portion of skin covering the glans is drawn forward with the fore finger and thumb of the left

hand and a section quickly cut off; the traction being thus taken off, the skin retracts and leaves the glans covered with the mucous reflection exposed. This is taken up between the fingers and thumbs of both hands, torn up to its insertion and reflected back of the glans. The integument is then drawn to meet it and thus it is allowed to heal. The effect of the operation is to entirely denude the glans of its præputial covering, and being thus left uncovered, its mucoid surface hardens by the contact of air, water, etc., and takes on the appearance and functions of integument.

The operation is completed by stopping hemorrhage if any exist, and by retaining the cut edges in their proper places by means of strips of lint, burnt sponge or linen. In the course of two or three days the wound is generally entirely healed by first intention. The reasons given for the institution of this ordinance by the rabbis, are various. I will add a few which seem to carry the most weight with them, and certainly are very plausible.

1. As the Biblical covenant, made by God with Abraham, to be observed by him and his generations forever, and which is to express the idea of the perfect devotion with soul and body of the circumcised to God and his service.

2. As a symbol of sanctification in the manner of the Christian baptism, in which sense Paul in his Epistle to the Romans (ii. 28–47) appears to have taken it.

3. As negation by an actual bloody protest against the Phallus worship of the heathen nations of that day, who worshipped the genital organs (Lingum and Phallus) as the symbols of creative power. (See Wunderbar, Talmud Med. p. 24.)

4. Circumcision was a condition of citizenship among the Israelites and a proof of nationality.

5. From its social import, as it is believed that circumcision tends to increase the procreative power.* And finally,

6. As a strictly sanitary or prophylactic measure, inasmuch as the organ can be kept much cleaner, which is really of some importance in regard to the fact that there is a sebaceous secretion between the glans and prepuce in the uncircumcised, which in hot climates is often the cause and seat of diseases which are prevented or at least much lessened in virulence by the excision of the prepuce.

In the East, as well as in other hot climates, there is a disease affecting these parts of which we here know nothing or very little at best. From an accumulation of this sebaceous

* See Schneider and Henke: Zeitschrift für Staats Arzneikunde, 1825, vol. iv. p. 223.

matter, an inflammation of one or more of the sebaceous follicles before referred to occurs, which enlarge, indurate, become painful, and finally produce troublesome abscesses or carbuncloid sores.* Circumcision would prevent such disease.

Flavius Josephus states (Flav. de ant. Ind. Contr. Apion l. ii. 13) that Apion, an Egyptian, who wrote against the Jews and ridiculed them on account of their being circumcised, was himself finally forced to undergo that operation, for a very virulent carbuncle of those parts, but that the operation being performed too late he succumbed to the disease amid the most torturing pain.

Philo (Opera ii. p. 211) refers to this also in the following language: "It would therefore be better to abandon this childish sarcasm and to examine understandingly and seriously the causes which lie at the foundation of this operation; but there are reasons for maintaining this custom of the ancients; in the first place the prevention of a violent disease, and one very difficult of cure, which is called anthrax, and occurs easily with such as have a prepuce."

I have already mentioned above that by reason of the exposure of the glans, its mucoid surface becomes hardened and takes on the character of epidermis, thereby also becoming less liable to infection, a circumstance which may in a measure explain the comparative infrequency of syphilis among Israelites as compared with others—a fact believed by many physicians, and sustained particularly by Collin and Mombert.

It is here to be noted that both phimosis and paraphimosis, are affections from which those properly circumcised can never suffer. Many persons will not understand why we should be born with a prepuce if it is to be excised after birth. To them the following opinion may give satisfaction; and I am sure no words of mine can be so appropriate at the conclusion of this part of my subject as those of the great Maimonides once more. He says (Doct. Perplexorum, ch. xiii.): "In our opinion also the principal reason for circumcision was of a similar nature (that is, tending to purity and virtue), and intended not as some have conjectured, to supply a defect in nature, but a defect in morals; not to remove what was superfluous, but to restrain what was impetuous, and by a painful rite check an evil propensity, for our father, Abraham, was the first who commenced the practice, of whom it is recorded how much he feared sin and how holy and pious and chaste he was in all his conduct."

And now, gentlemen, let me detain you a few minutes longer in order to remove a false impression which has gone abroad, and which, I regret to say, received a new impetus perhaps by

* Wunderbar, Bb. Talmud Med. p. 16.

some remarks made by one of my predecessors in this course of lectures. The hymen was made the subject of a lecture or paper read here some two months ago, and all of you who heard it must have been both pleased and profited thereby. It conveyed to us, I dare say, all that is known at this day of its anatomy, pathology and importance in medical jurisprudence. No one here was more gratified than myself, excepting that in the course of the lecturer's remarks on the value of the hymen as a test of virginity, he spoke of its non-existence as being considered by the Jewish law as a proof of immorality, and that its absence would entail the punishment of death by stoning upon the poor maid. Far be it from me to blame the author of that paper for coming to such conclusions; on the contrary, I will demonstrate to you that, although wrong in his conclusions, they were necessarily wrong because based on false premises, for which he is not responsible. The opinion expressed by the lecturer was perhaps justified by the text—but the text itself is incorrect. The English version is, in this case, as in many others, not quite reliable, because the translators frequently disregarding the idiomatic expressions of the Hebrew language, gave a version very different from the original Hebrew text, in its meaning and explanation. The text as given in the English Bible is as follows, Deut. xxii. 13, etc., "And if any man take a wife and go in unto her and hate her, 14 And give occasion of speech against her, and bring up an evil name upon her, and say I took this woman and when I came to her, I found her not a maid: 15 Then shall the father of the damsel, and her mother, take and bring forth *the tokens* of the damsel's virginity unto the elders of the city in the gate; 16 And the damsel's father shall say unto the elders, I gave my daughter unto this man to wife and he hateth her; 17 And lo! he hath given occasion of speech against her, saying, I found not thy daughter a maid, and yet these are the tokens of my daughter's virginity, and they shall spread the cloth before the elders of the city; 18 And the elders of that city shall take that man and chastise him; 19 And they shall amerce him in a hundred shekels of silver and give them unto the father of the damsel, because he hath brought up an evil name upon a virgin of Israel; and she shall be his wife; he may not put her away all his days. 20 But if this thing be true and *the tokens of* virginity be not found for the damsel," etc.

You will observe in examining the 15th and 20th verses that the words *the tokens of* are in italics, and all words printed in italics are interluded to make the sense, by the translation, and are not found in the original. Again the Hebrew word

"Betulim" which is translated in the 14th verse a "maid" is rendered in the 15th and 20th verses *the tokens of virginity.* If the interpretation of this passage were as stated by the lecturer, it would have been expressed in a very different way. It would have stated that if the husband does not find any signs of blood after the first sexual commerce, *he* is to come before the judges and make a complaint. *But this the text does not say.* Neither the hymen nor blood are mentioned. It is not the husband against the wife or her parents, but the parents of the wife, that bring the complaint against the husband for defaming their daughter.

The case then is this. If the husband after marriage takes a dislike to his wife, and as an excuse for his neglect maintains that he does not believe her to have had a good character before her marriage, then the parents are to come before the judges and bring witnesses to testify to the good and virtuous character of the girl; whereon the judges are to chastise him by fining him one hundred shekels and compelling him to keep her as wife—losing the right of divorce.

But in case the parents cannot bring witnesses to testify to the good character of the girl, but the husband proves by witnesses that she has been guilty of whoredom, then she is subject to the penalty of death, as chastity is a fundamental virtue in the Hebrew community.

The Talmud (from which this interpretation is taken, and which, as is well known, contains the authentic and original interpretations of the Biblical Laws as compiled from tradition about the third century) remarks that the word "bethulim;" (which in the English version reads "tokens of virginity") means, "the witnesses of her virginity" or as we should say in English "witnesses of her chaste conduct." And the expression "spread out the cloth," or as the original Hebrew text says, "spread out the garment," is an idiomatic Hebrew expression, corresponding with the words "clear her character." As if her character were exhibited even as a garment without stain, every trait and act being spread out for examination. *The Talmud does not make the hymen or blood a test of virginity;* on the contrary, it mentions the fact (and let modern critics remember it) that there are women, perfectly chaste, who owing to some disease or accident have not this sign of virginity, and mentions a family in which this organ was congenitally absent.

If then we were to translate said Biblical verses freely, according to the idiom of the English language, they would read thus;—If a man take a wife and go in unto her and take a dislike to her and give occasion of speech against her, and

bring up an evil name upon her saying, I took this woman and married her, but now find people (or witnesses, deny her chastity. Then shall the father and mother of the girl, take and bring forth witnesses to testify to the character of the girl to the elders of the city in the gate. And the father of the girl shall say to the elders, I have given my daughter to this man as a wife, and now that he has taken a dislike to her he speaks against her slanderously, saying, I have found witnesses to deny her chastity, and here now are the witnesses (or *proofs not tokens*) to testify to the good character of my daughter. *So shall they clear her character before the elders of that city.* Then shall the elders of the city take that man and chastise him; and they shall fine him a hundred shekels of silver and give them unto the father of the girl, because he hath brought an evil name upon a virgin of Israel, and she shall be his wife; he may not divorce her all his days. I will only remind my hearers that our courts *at this day decide* the character of a female upon the same proofs.

As my highly esteemed friend, the Rev. Dr. Fischell of this city, to whom I owe the above Talmudical extract (for which I heartily thank him), says: "The women's rights women themselves could not demand greater consideration for their sex, than does the Mosaic Law."

I trust, gentlemen, that I have succeeded in showing that the Jewish statutes in their spirit, no less than in their practice, do not deserve condemnation. Whilst punishing outrageous crimes with death, they protect the innocent. The hymen was never believed by the judges in Israel to be a positive token of virginity nor its absence proof of vice. It excites our admiration that more than 2000 years ago, medical jurisprudence among the Jews upon this point at least had reached a point of perfection to which science in the latter half of the 19th century, labors to bring it, among the most enlightened nations of the earth.

ART. IV.—*Report of the New York Eye Infirmary, for January and February*, 1859. By F. J. BUMSTEAD, M.D., Assistant Surgeon.

DISEASES OF THE EYE.

Caries of the Bones of the Orbit	1	Iritis	9
Aneurism within the "	1	" Syphilitic	4
Injuries of the Lids	1	Synechia	4
Inflammation and Abscess of the Lids	6	Prolapsus Iridis	1
Simple Tumors of Lids	7	Dislocated Lens	2
Cancroid " "	1	Cataract	18
Entropion and Ectropion	4	" Traumatic	3
Trichiasis	1	" Congenital	1
Diseases of the Lachrymal Passages	24	Asthenopia	8
Tinea and Lippitudo	47	Choroiditis and Retinitis	6
Hordeolum	5	Amaurosis (primary lesion unknown)	14
Conjunctivitis simple	126	Glaucoma	2
" purulent	1	Diplopia	1
" neonatorum	2	Myopia	1
" phlyctenular	103	Presbyopia	2
" granular	66	Paralysis of the third pair	1
Symblepharon	3	" " seventh "	1
Pterygium	3	Strabismus, converging	13
Keratitis	28	Hyperesthesia	2
Abscess of the Cornea	2	Sunken Globe	1
Ulcer " "	21	Injuries of Globe	9
Opacities "	22	Diagnosis not recorded	15
Foreign particles	9		623
Slough of Cornea	9	Diseases of the Ear	61
Staphyloma	5	Total	684
Conical Cornea	1		
Kerato-Iritis (aquo-capsulitis)	2		
Sclerotitis	5		

Operations.—For tarsal tumor, 1; for entropion and ectropion, 3; Bowman's operation on lachrymal passages, 3; for symblepharon, 1; for strabismus, 3; excision of globe, 4; removal of staphyloma, 1; for artificial pupil, 2; for cataract, 7, [four by keratonyxis, one by reclination, one by extraction, and one by linear extraction]; extraction of lens, dislocated beneath conjunctiva, 1. Total, 26.

Entropion and Ectropion.—In one case of inversion the roots of the lashes were destroyed by *scalping* the free border of the lid. In a second case, a triangular piece of the integument and orbicularis muscle was removed. In one case of eversion, a portion of the palpebral conjunctiva was exsected.

Symblepharon.—A case, in which there was a thick, fleshy adhesion between the lower lid and the globe, extending to the margin of the cornea, was successfully operated on by Dr. Agnew, by dividing the adhesion, and keeping the lid everted from the ball by means of a silver wire suture, attaching it to the cheek until cicatrization took place.

Strabismus.—All three operations were performed by the

sub-conjunctival method as modified by Mr. Critchett.* In performing the operation by this method, the surgeon seizes, with toothed forceps, a fold of the conjunctiva, and divides it with blunt-pointed scissors, making an opening which does not exceed one-fifth of an inch in diameter, and which is parallel with the edge of the lids, and on a level with the lower margin of the cornea. In a similar manner he divides the sub-conjunctival fascia to the same extent. Through this aperture he introduces a strabismus hook, with rather a long beak, and bent at a right angle, sweeps it round the globe and passes it beneath the tendon of the rectus, which he finally divides with the blunt-pointed scissors, introduced through the same opening. The lids are kept separated during the operation by a spring speculum, and the patient, if restless, is put under the influence of an anæsthetic.

The advantages of the sub-conjunctival method are: the rapidity with which the wound heals without suppuration or the formation of fungous granulations, and especially the avoidance of sinking of the caruncle, increased prominence of the globe, or eversion of the eye—accidents which are frequently produced by the old method of operating. In all three cases, the result was perfectly satisfactory, although in one—the eye being affected with nystagmus—the prognosis before the operation was highly doubtful.

Excision of the globe by Bonnet's method.—An able article on this operation, by Dr. C. R. Agnew, appeared in the January number of this Journal, but as Bonnet's method is comparatively but little known in this country, some further remarks may not be out of place.

The cases to which it is especially applicable are those in which successive attacks of inflammation occur in a disorganized eye, and the sight of the opposite eye is endangered through sympathy with its fellow. Verily "there is nothing new under the sun,"† and it is a singular fact that the idea of extirpating the disorganized eye under these circumstances suggested itself to St. Ives. In his "New Treatise of the Diseases of the Eyes," which was translated and published in London, in 1741, page 292, this author says: "If the *Humour* of a *Gutta Serena* damages but one *Eye*, there is room to fear lest the *Fever* return in the *Year*, and the other *Eye* be affected in the

* See London Lancet, Am. Ed., July, 1855.

† A remarkable instance of this is pointed out in a recent lecture by Professor Simpson, of Edinburgh, who draws attention to the fact that the operation for vesico-vaginal fistula, introduced by Dr. Sims, was performed in nearly all its details by a Mr. Gossett, in England, and described by him in the *Lancet*, vol. i., for 1834–5, page 346. See *Medical Times* and *Gazette*, January 8th, 1859.

same Manner. I have, hitherto, observed this Misfortune happen to all those, when their *Gutta Serena* began by a light *Inflammation*, attended with violent *Pains* in their Head on the Side of the defected *Eye;* this Observation has induced me to think, though I never dare attempt it, that, by extirpating the decayed *Eye*, one might prevent the good *Eye* from falling into the same Misfortune; it would be a great Comfort to the *Patient*, to have his other *Eye* preserved from the Discharge of this destructive *Humour*, which, for the most part, happens, a Year or two after the *Loss* of the first *Eye*." The italics are in the original.

From the published accounts of the disease of the eyes, under which Prescott, the historian, suffered, there is every reason to believe, that his case was of the character in question, and that the sight of one eye might have been preserved by extirpating the other.

Of late years, however, the field for this operation has been somewhat extended, experience having shown that it is one of the simplest operations in surgery, and entirely devoid of any liability to unpleasant consequences. Its value is, indeed, more evident to the patient, when, having already lost one eye, he finds himself in danger of being totally deprived of sight; but it cannot with safety be left as a mere *dernier ressort*. In many instances, even when resorted to at a very late period, it will still be efficacious in effecting a cure, as in the cases reported in the paper of Dr. Agnew, already referred to. But even here, much valuable time will be lost, and a considerable amount of risk run. It is certainly a far safer course to pursue, to extirpate an eye, the vision of which is irretrievably lost, just as soon as it exhibits any signs of deep-seated inflammation. And we may go one step further, and assert that this operation is advisable in all cases of one disorganized eye, independently of any existing attack of inflammation, among sailors and others whose avocations call them to a distance from surgical advice. It is indeed true that such persons may go through life without inflammation being set up, but the chances are strongly against it, and the danger is sufficient to justify the surgeon in recommending extirpation.

We may classify the cases in which Bonnet's operation is recommended as follows:

1. Cases in which deep seated inflammation occurs in a disorganized eye, whether the opposite eye sympathizes with it or not.
2. In all cases of disorganized globes in persons laboring at a distance from surgical advice.
3. Cases in which a foreign body is lodged in the eye.

4. Cases of sightless eyes, in which the lens is dislocated into the anterior or posterior chamber—the ordinary operation of sinking the eye being extremely liable to the occurrence of hemorrhage from the retinal artery and the choroid, followed by weeks of acute suffering while the clot is eliminated by suppuration.

5. Cases in which deep-seated hemorrhage occurs during the operation for extraction—as recently advised by Dr. Agnew.

6. Cases in which one eye is disorganized and the other requires an operation for artificial pupil or cataract.

7. Cases of extensive staphyloma involving the sclerotica.

8. Cases of extensive symblepharon with complete opacity of the cornea, such as often follow burns, and the irritation and deformity of which cannot be remedied by any other operation.

The stump left after Bonnet's operation is not quite so freely movable as after the ordinary operation of sinking the eye, which is, to a certain extent, a disadvantage, when an artificial eye is to be worn. The difference, however, is not great, and is more than counterbalanced by the advantages of Bonnet's operation already enumerated, and also by the fact that an artificial eye can be worn with far less inconvenience, and without danger of its exciting inflammation in the stump.

The following are some of the cases operated upon by this method, at the Infirmary, during the last two months:

Case 1.—F——, an Englishman by birth, and peddler by profession, admitted to the Infirmary under the care of Dr. Bumstead. Patient lost his left eye-sight years ago, in consequence of a blow received in England. For the last five years has been a peddler in this country, travelling with his wagon from State to State, chiefly in the South and West. During this time he has had four attacks of inflammation in the sightless eye, attended with excruciating pain, involving the whole side of the head, and the opposite eye sympathizing with its fellow, as shown by injection of its vessels, pain and great photophobia. On the occurrence of each of these attacks he has been obliged to leave his wagon, and hasten to some city where proper medical aid could be procured. Under antiphlogistic treatment, continued for several weeks, the disease has always been subdued, and the patient has been able to return to his employment.

He has now come to New York from the western part of Virginia, to seek relief from a fifth similar attack. The globe is found to be softer and less full than natural, quadrilateral in its form, and its conjunctival and sclerotic vessels intensely injected. All power of distinguishing between light and dark-

ness has been lost for eight years. Patient suffers excessive pain in the globe, and on the corresponding side of the head. The opposite eye is slightly injected, and quite intolerant of light.

The patient was allowed the choice between two alternatives, viz.: the usual treatment by means of cupping, antiphlogistics, etc., which might succeed in restoring him to as good a condition as he enjoyed before the present attack, but which would require several weeks absence from his business, and leave him liable to similar attacks in future—or excision of the eye, which would enable him to leave the city in a few days, afford protection for the future, and insure the integrity of his opposite eye. He chose the latter course.

The disorganized eye was excised by Dr. Bumstead, according to Bonnet's method, and, on the fourth day after, patient returned to his business, with entire relief of his symptoms, and with the ocular stump sufficiently healed to support an artificial eye.

Case 2.—J. R., aged 48, came to the Infirmary May 7th, 1848, with a dislocated lens floating in the posterior chamber, injection of conjunctival and sclerotic vessels, and intense pain in the globe and corresponding side of the head (the left). He stated that he had been perfectly blind in this eye for 25 years, but could give no history of his case. Was not aware that he had ever received any blow in the neighborhood of this eye.

Excision of the eye was recomended at this time, but patient declined. He was treated with hyd. cum creta cum quinia until June 14th, when his symptoms were entirely relieved, and he ceased attendance.

Patient returned to the Infirmary Feb. 5th, 1859, with an abscess of the cornea, extensive effusion of lymph in the anterior chamber, concealing the pupil and the greater portion of the iris, intense conjunctival and sclerotic injection, and severe pain in the globe and side of the head. These symptoms have existed for about a week.

There is evidently no hope of saving the eye, and even if it could be done at the expense of weeks of suffering, its usefulness as an organ of vision has long since been lost. The pain is so severe that patient is anxious for an operation.

Feb. 5th.—Dr. Bumstead excised the eye by Bonnet's method.

Feb. 7th.—The severe pain has entirely subsided since the operation. Patient experiences only an occasional uneasy sensation in the stump, which is entirely covered with the flap of conjunctiva, with the exception of a surface which may be covered with a five cent piece.

On examining the eye after its excision, the vitreous was found to be diffluent, and containing a large amount of fibrinous matter, the retina extensively detached, and the choroid deprived, in a great measure, of its pigment.

Case 3.—M. H., aged 25, entered the Infirmary Jan. 19th, under the care of Dr. Bumstead. Patient can give no satisfactory history of her case, except that she lost the sight of her left eye when about 10 years old, after gazing at an eclipse of the sun.

This eye is now found to be rather more protuberant than the right; the pupil widely dilated and immovable; behind and below the iris can be seen the lens dislocated in the posterior chamber, and of a dense chalky white color. There is a zone of injected sclerotic vessels around the cornea. Patient suffers severe pain in the eye, and around the orbit, especially at night. No perception of light in the eye. Opposite eye sympathetically affected, and highly intolerant of light.

It was evident that in this case we had to deal with a *calcified* lens, dislocated and resting upon the retina. It was also stated to the gentlemen present at the clinique, that we should probably find a plate of calcific matter in the tunics of the eye, as such accompany very frequently a calcified lens.

Dr. Bumstead excised the eye by Bonnet's method.

On examining the excised globe, the optic nerve, at its entrance, was found to be partially atrophied. On dividing the globe into anterior and posterior halves, a very beautiful appearance was presented. The choroid preserved its normal black color, forming a background which contrasted finely with the dislocated and calcified lens, which was of a pure white color, and lay upon the posterior surface of the iris and ciliary processes.

A plate of calcific matter was also found, as had been anticipated, in the tunics of the globe. This plate was of the size of a ten-cent piece, and its centre corresponded to the entrance of the optic nerve. Its edges were sufficiently sharp to cut the fingers when pressed against it. It was clearly deposited in the choroid, and overlying it and the retina, was a thick layer of firm fibrinous matter which encroached upon the posterior chamber of the eye.

Jan. 21*st.*—Two days after the operation. Pain entirely relieved, the patient having been free from suffering since the excision. Stump well covered, and freely movable in correspondence with the opposite eye.

Operations for cataract—Extraction.—Mrs. T., aged 66, with hard cataract of both eyes, and just able to distinguish light, admitted under the care of Dr. Agnew. Patient was an un-

favorable subject for any operation, being quite feeble, exceedingly timid and nervous, and in a state of senile atrophy.

Extraction was performed upon the right eye by Dr. Agnew, Jan. 19th. The steps of the operation were those usually adopted at the Infirmary. Patient in the recumbent posture upon a table; the operator sitting behind and elevating the superior lid; an assistant depressing the lower lid; the knife the narrow one of Sichel; the section of the cornea superior.

The lens was extracted without difficulty; the pupil assumed a central position; the lids were closed with isinglass plaster, and the patient removed from the table to bed. Two grains of quinine were ordered to be administered three times a day, also beef tea and wine whey.

On the evening of the operation, she experienced some pain in the globe which lasted three quarters of an hour, and then subsided. The following day she was quite comfortable, and there was no swelling of the lids, or other indication of inflammatory action.

Jan. 25.—Six days after the operation. All the symptoms were favorable until last night, when the patient was seized with a fit of sneezing. During the act, she "felt something give way in the eye." The plaster is removed and the eye examined to-day for the first time. The flap of the cornea is found to be ununited for two-thirds of its extent. Its edges are transparent and not hazy, favoring the supposition that the separation is secondary, and the result of the sneezing last evening. The iris is protruding between the edges of the wound, and the pupil is drawn upwards, though sufficiently large for visual purposes.

Belladonna is now applied around the orbit; the lids again closed with plaster; quinine, beef tea and brandy, ordered to be given freely, and the patient allowed to sit up.

It is unnecessary to trace the progress of the case from day to day. Suffice it to say that the attempt to produce coaptation and adhesion of the edges of the wound was unsuccessful. The hernia of the iris was, however, but slight, and the protruded portion, aided by occasional applications of a solution of nitrate of silver, ℈iij. to ℥j. water, partially collapsed, and has now become glazed over, forming a firm cicatrix. The pupil is drawn somewhat upwards, but is sufficiently patent, and the cornea is clear. Patient is now able to go about by herself and to see all objects not requiring nice visual power. Some opaque capsule obstructs the pupil, which is to be removed by Keratonyxis, when a still more satisfactory amount of vision may be anticipated.

"*Linear*" *extraction.*—This was a case of traumatic cataract of

a few days' standing. The wound of the anterior capsule which produced the cataract, had left an opening for the escape of the substance of the lens into the anterior chamber. This was filled with the disengaged fragments, the presence of which excited great irritation in the globe. Dr. Bumstead performed "linear" extraction, by puncturing the cornea near its lower edge with a broad needle, and introducing an ordinary grooved director through the opening thus made, the lens matter was discharged through the groove. The irritation was relieved on the withdrawal of the cause which excited it; farther absorption of the lens has taken place, and the patient has now good vision with this eye.

Extraction of dislocated lens.—This was one of those singular accidents in which a blow produces rupture of the sclerotic, and dislocation of the lens, beneath the conjunctiva.

In the present case the lens was lying external to the sclerotic, above the cornea, and causing a protuberance of the conjunctiva. The conjunctiva covering it was divided by Dr. Hinton, and the lens extracted. This operation was resorted to, not with any hope of restoring vision, which was irretrievably lost in consequence of the blow, but to remove the source of irritation produced by the friction of the lids against the tumor.

274 Sixth Avenue.

ART V.—*Remarks on the Treatment of Fractures of the Thigh, with a new Apparatus. With report of Cases* (*continued from page* 189, vol. v.)

By J. H. HOBART BURGE, M.D., Surgeon to Brooklyn Central Dispensary, late Surgeon to the New York Dispensary, etc.

ON looking over my previous communications to the Journal, I am surprised to find that I have altogether omitted to mention one peculiar advantage which our apparatus (now pretty generally known as "Burge's Apparatus for Fractured Thigh") possesses over the ordinary straight splint of Desault and Physick. I allude to an advantage which needs only to be mentioned in order to gain the hearty assent and appreciation of every surgeon. It is, that the counter-extending pressure falling only upon the nates and tuberosities of the ischia, does not interfere with the circulation in the injured limb, and consequently there is much less swelling of the foot and leg than when the counter-extending pad nearly encircles the thigh, and presses upon the groin as it always does in the common straight splint. Another advantage, growing out of this peculiarity, is that the limb may be permanently dressed and extension made (generally) several days earlier than is customary

with the straight splint, and thus the patient most effectually preserved from those painful twitchings of the muscles which are so common in these cases. The great practical importance of leaving the circulation in the limb as little obstructed as possible by our surgical appliances will be so obvious to the reader, that I shall not enlarge upon it.

I take this opportunity of inviting the special attention of naval surgeons to the excellence of our apparatus in shipboard cases. A simple platform six feet long and two feet wide, slung with ropes at the corners, suffices for its support. It should of course be well secured; and then amid all the rolling and lurching of the ship, the patient will rock and rest like a child in his cradle. My observations upon this point are not entirely theoretical. Having spent more than one year in the capacity of ship-surgeon (though not in the navy), I know well the difficulties to be overcome.

Among the cases already reported in this series are two, the records of which were incomplete at the time of publication. As we design these reports for future reference and comparison, we will say a word upon *them* before we proceed to detail new cases.

In reference to Case 3, which was a fracture of the right femur, and also of the left tibia,* I need only add that firm union was the result in both limbs, without deformity, and if there was any shortening, that of one limb exactly compensated for that of the other, as they remained of equal length.

With regard to Case 8,* we expressed considerable doubt as to the future usefulness of the limb. We are gratified now to be able to state that the union became perfectly firm. There was false anchylosis of the knee, which, however, yielded to passive motion and the douche; and gradually the patient gained power over the limb till locomotion became good. There is no bowing at the point of fracture, and although there is a shortening of three-fourths of an inch it is hardly perceptible in the gait.

The following case was treated in the United States Marine Hospital, Detroit, Michigan, by Z. Pitcher, M.D., ex-president of the American Medical Association, who kindly communicated it to me. I will give it in his words.

Case 14.—"The patient was an adult, and otherwise in good health. The injury was caused by the fall of a steamboat fender across the thigh two inches above the condyles of the femur by which the bone was not simply fractured, but crushed.

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* *N. Y. Journal of Medicine*, May, 1857.

He was put into the apparatus on the 26th of July, and was released from it on the 5th of September, during which time he scarcely made a complaint that could be attributed to the apparatus itself. The fractured limb will not be over one-fourth of an inch shortened and the motion of the knee joint is now (September 16th), nearly one-half its normal extent." In commenting upon this case the doctor says: "I have been much pleased with the working of the apparatus, particularly with the action of the counter-extending straps, and the means of preserving the curve of the fermur during extension."

After a kindly suggestion in reference to adding a foot-piece by which, in his opinion, the value of the instrument would be increased, he says, "a little modification would make it the best apparatus extant for the treatment of morbus coxalgia."

Case 15.—Was treated at Bellevue Hospital. Dr. James R. Wood, visiting surgeon, Dr. Charles Phelps, house surgeon; Dr. Bab, assistant surgeon, kindly transcribed for me the following record:

"Celia Farmer, Irish, married. Is not sure of her age, calls herself 60, is apparently 70 or more, of good constitution, and moderately temperate habits. Admitted to the hospital, Dec. 28th, 1858. On Christmas eve, fell from a ladder, a distance of eight feet, striking the outer side of the left thigh across the edge of a large iron kettle. Upon examination there was found to be great pain, and much ecchymosis at the seat of injury, particularly on the outer side of the limb. Limb shortened two inches, and a fracture easily discovered just above the condyles. It was slightly oblique, downward and forwards, the upper fragment overlapping the lower, anteriorly. Treatment: At first, limb merely placed in a comfortable position. Jan. 3d, Limb still two inches short. Burge's apparatus applied with splints of coaptation, and adhesive plaster extension. Whisky given daily. On account of the age and infirmity of the patient it was not deemed advisable to make very forcible extension.

"March 1st.—Apparatus removed, union firm, no apparent shortening except by careful measurement, and then not more than three-eighths of an inch. Has been very comfortable during the whole course of treatment, sitting up daily. April 1st, walks without a staff."

The next case being one of unusual interest, I need make no apology for detailing it at some length. The fracture was at the cervix, and united firmly with loss of the cervix. The patient dying some weeks after of phthisis, the specimen was secured by Dr. James R. Wood (who had charge of the case), and presented to the New York Pathological Society, January

27, 1858, with appropriate remarks, after which he gave the following history of the case.

Case 16.—"The subject from whom this specimen was taken was 57 years of age at the time of the accident, May 20, 1857, and although not very robust, still enjoyed good health. He was not strictly temperate, neither could he be considered intemperate, judging from the history he gave me of his habits. When a young man he contracted a chancre, which was treated as soon as it was noticed, and was not followed by any discoverable constitutional symptoms that I could ascertain. He came under my charge May 23d, nearly three days after the accident, of which he gave me the following account: While descending a stairway, he slipped a few feet and fell, striking the post-lateral portion of the left trochanter major against the edge of one of the steps. On recovering himself he found he could not move the left lower extremity, but supposing at the time that he had suffered no serious injury, he did not seek surgical advice, as he thought he should recover in a few days, and resume his trade, which was shoe-making. Finding, however, that he grew no better, he came under my charge, presenting the following symptoms: Shortening of the left lower extremity a little over an inch; eversion of the foot; inability to elevate or rotate the limb inwards, and very well marked osseous crepitus when extension and rotation were made. He was examined by a number of medical gentlemen, who were all of the opinion that a fracture of the neck of the bone existed, but differed from me in not expressing an opinion as to its seat. Taking into consideration the age of the patient, and the small segment of a circle described by the trochanter major when extension and rotation were made, I supposed it to be a fracture of the neck within the capsule. The only treatment adopted for the first three days, was to place the limb in as easy a position as possible. On the 20th of May, a long strip of adhesive plaster was applied along the inner and outer aspects of the leg and thigh, forming a loop a couple of inches long, below the foot. The limb was then snugly bandaged, and secured to a splint that extended from a body-belt to a point eight or ten inches beyond the foot. Extension was then made by connecting the screw in the lower end of the splint to the loop of adhesive plaster, and the counter extension made by a perineal pad that was attached to the upper end of the same splint. The extension was increased from day to day, keeping the limb at nearly its normal length, until the fourth day, when the perineal pad, although soft, had chafed him so much that it had to be removed. He was then placed in an apparatus invented by Dr. Burge, with which counter-extension

is made over the tuberosities of the ischia, and extension by means of the screw at the lower part of the long splint. In this apparatus his pelvis was held secure and at rest, by being confined by the splint on one side, and a movable support on the other. On June 24th, it was found necessary to re-dress the limb, as the bandages had loosened over the leg, and the plaster began to slip. At this time there was half an inch shortening by measurement. He bore this treatment very well. No change was made from this time until July 19th, when the apparatus was dispensed with. The limb still continued half an inch shorter than the uninjured one, and judging from the examination made at the time, union was supposed to have taken place. Having complained of considerable pain in the joint when moved or left unsupported by a pad behind the trochanter major, a blister was applied with the supposition that some inflammation existed within the capsule. This was followed by relief for some days, after which it was considered proper to repeat it, and so on, at intervals, for some weeks, at the end of which time he could forcibly push himself up in bed by placing the foot of the injured limb against the foot-board of the bedstead. He never recovered, however, so as to walk about, although he would stand on the limb whenever he was desired to do so. On the 19th of August he was attacked with acute bronchitis, which soon yielded to treatment. As some cough and expectoration continued, a thorough examination of his chest was made, and it was found that tubercles were softening in the anterior portion of the lungs. With but few exceptions, he was confined to his bed till the time of his death, Jan'y 23d, 1858."

Autopsy 23 hours after death.—Lungs found extensively diseased. The present specimen was then removed. The neck of the bone is entirely gone, the head being firmly united directly to the trochanter major. This specimen has been placed in the museum of Bellevue Hospital to throw what light it may upon the vexed question, "Do intra-capsular fractures ever unite by bone?" I have examined it carefully, and must admit that I do not consider its testimony clear upon this point. Like all specimens which I have ever seen of the sort, it leaves room to suspect that the fracture was both within and without the capsule.

Case 17.—Wm. Carroll, aged 16, Irish, confectioner. Admitted to New York Hospital, July 22d, 1858. Dr. Parker visiting surgeon, Dr. Shrady house surgeon. At 6 P.M., the patient, a strong, healthy person, while walking with a companion, was tripped up by the latter who fell with his entire weight across his lower right limb. On admission, there is found to be a frac-

ture of his right thigh just above its middle. No crepitus distinguished, but free mobility at seat of injury. Shortening one inch.

Treatment.—Position decubitus, limb placed on double inclined plane. Aug. 2d.—Limb put in long splint. Aug. 6th.—Shortening little less than one inch. Aug. 12th.—A slough has made its appearance in the perineum, but is comparatively superficial; it is oblong in shape, and covers an area of about two square inches. The counter-extending band loosened. Up to this time the leg was down to its full length. Aug. 17th.—Slough gradually clearing off. Shortening now about five-eights of an inch. Aug. 21st.—Some mobility at point of fracture, shortening half an inch—limb put up in Burge's apparatus—slough in perineum has all cleared off, and the ulcer is granulating. Sept. 15th.—Apparatus removed to-day. Extension has been kept up in such a way that there is *no* shortening—no deformity—union perfectly firm. Limb placed on double inclined plane. Oct. 5th.—Moves about the ward on crutches. Subsequently discharged cured.

The readers of the Journal will not fail to observe that this makes four *consecutive* cases treated on our apparatus, in New York Hospital (by different surgeons), in which the record shows *no shortening*, and *no deformity*. So rare, indeed, have been these *perfect results* in the history of surgery, that many excellent surgeons have supposed them impossible, and doubtless some will now suspect that these were cases *selected*, in order to make a *good report*. We invite special attention to the circumstances of each case and to the names of those under whose surveillance they were treated.

We have other cases in progress which will soon appear. The record of one other has just been kindly sent me, but as there are points requiring further explanation by the attending surgeon, I withhold it for the present. It has often been remarked that conservatism is carried to such an extreme by the members of our profession, that anything new is sure to be violently opposed, if not rejected. I am happy to bear witness that no such spirit has been manifested towards our humble effort, and that, except in one or two rare instances, we have received the most cordial congratulations of our professional brethren.

ART. VI.—*Clinical Lecture on Ununited Fractures, delivered at the New York Hospital, on 23d November*, 1858. By THOMAS M. MARKOE, M.D., Attending Surgeon.

GENTLEMEN: We have a case in the house upon which I propose to operate this morning, of ununited fracture of the femur, and the occasion seemed to me to be a good one to ask your attention to this very important subject of non-union of fractured bones. In the minds of the non-medical public, the failure of union after fracture is presumptive evidence, which they do not fail to receive with great readiness, of incapacity, or inattention on the part of the surgeon in charge. Let me caution you in the outset of our discussion, not to allow yourselves to entertain any such sentiments; for while it is true that real knowledge, joined to practical experience and assiduous and careful attention, will go very far in diminishing the number of failures; yet we are obliged to acknowledge that after all has been done that science, skill, and care can do, there will remain a certain number of these unfortunate cases in which union fails, either in whole or in part, to be accomplished. The proportion of these cases to the whole number treated, is, happily, small—not greater than 1 in 600 or 700, according to the only author whom I have ever met with who pretended to make any estimate on the subject, and I should judge that the ratio he mentions was not very far from the true one.

In considering this subject, I shall call your attention to four principal heads. 1st. To the pathological condition of ununited fractures, or the anatomical features they present on dissection. 2d. To the symptoms of, and the effects produced by ununited fractures. 3d. To the cause of failure of union. 4th. To the proper treatment of such cases, and its results. And in commencing, I must remind you that we may throw out of our calculation altogether that class of cases in which union is merely delayed beyond the usual period, and in which nothing is required but time and patience. I shall only speak of such cases as remain uncured after all due patience has been exercised, and all necessary time allowed, and which evidently show, six months or a year after the injury, that nature is not able, without some assistance from art, to complete the wished for cure. Thus narrowing down the field, we find, on dissection, that the fracture presents one of the four following conditions:

1. *No Union.*
2. *Ligamentous Union.*
3. *Union by Fibrous Bands.*
4. *False Articulation.*

1. *No union.*—It is exceedingly rare that we find on examining an ununited fracture no trace whatever of reparative attempt. Nature is so uniform in her operations that even when the circumstances are unfavorable for perfecting union, the process is generally commenced and carried on, as near to perfection as the opposing influences will permit. Sometimes, however, it does happen that either the system is so borne down by some wasting and rapidly exhausting disorder, or the

local conditions are so entirely incompatible with union, that the reparative nisus is not in the slightest degree excited; and on examination we find no change in the ends of the fragments which would indicate even the commencement of bony exudation. This condition is sometimes shown in cases of severe, and finally fatal injury, in which the constitutional powers never fully rally from the depressing effects of the injury, or its immediate consequences, and where, though the patient may linger many days, or even weeks, no attempt at bony exudation is found on dissection; and it is well illustrated in this specimen, taken from a case of ununited fracture of the femur, in which the fragments were separated from one another by the interposition of a thick layer of muscles; and here you see not only that no attempt at union has occurred, but the ends of the bone are rounded off, and in fact atrophied.

2. *Ligamentous union* is the term most commonly applied to cases where union does not take place, but where the uniting medium remains soft and flexible, instead of becoming ossified, and this is by far the most common condition in which ununited fractures are found on anatomical inspection. In order more fully to understand this state of parts, I must call to your recollection the actions which go on in the healthy repair of fractured bones. And here I need not detain you with all the minutiæ of provisional, intermediary and definitive callus as we used to study them in former days. Mr. Paget has done the student good service in showing that these more complicated processes are not the usual processes of repair in man; and that in our bodies, accidents to the bones are repaired very much on the same principle as that on which the carpenter mends a broken stick. The glue is placed between the fragments just where they need it, and not around about them, as we find is the case in the inferior animals. There is usually no provisional callus in man; and the process of union consists merely in the pouring out between the fragments, in the most favorable positions for uniting them, a substance which is at first soft, and gradually becomes firmer, and as it organizes, becomes first usually fibrous, sometimes fibro-cartilaginous, and finally osseous, assuming in the end the perfect structure as well as the firmness of original bone. Now, this process of transformation of the uniting medium may be arrested at any stage of its progress; and if it be so arrested at a point short of osseous consolidation, the result is what is called ligamentous union. In such instances we find that sufficient of the uniting material has been poured out, and that the broken ends are well glued together, but the glue is soft, and allows such a degree of motion at the seat of fracture as to make the limb useless for the ordinary purposes of locomotion. This condition of things is most commonly due to constitutional causes, and it would seem as if the powers of repair were sufficient to produce the uniting substance in proper quantity, but were not able to effect its elaboration into bone.

3. *Union by fibrous bands.*—The third division in this table embraces cases which are closely allied to those last under consideration. In these the uniting material is not poured out between the fragments in proper quantity, but is distributed around the fractured ends in mere bands

of well organized fibrous tissue passing from one fragment to the other, so as to bind them loosely together. Sometimes these bands are few and slight, and of an areolar rather than a firm fibrous texture. This is not unfrequently seen in ununited fractures of the neck of the femur, where it is occasionally observed, that a few slender and even thread-like bands, passing from the neck to the broken head, are the only indications of an attempt at the repair of the injury. On the other hand, they are sometimes quite considerable in number and strength, and when they surround entirely the ends of the fragments, and at the same time are short and firm in their texture, they form a tolerably strong bond of union. Now if we suppose the ends of the fragments enlarged by ossific deposit, and their opposed surfaces mutually adapted to one another, and well surrounded by the fibrous bands above mentioned, we approximate to the fourth and last class in our anatomical list, viz.:

4. *The false articulation.*—This is so denominated, because there seems to be, on the part of nature, a purpose to form something like a regular articulation, at the point where she has failed to unite the fractured bone. In very perfect specimens of this condition, we observe, that the ends of the fragments are expanded, somewhat like the expanded articular ends of the long bones; that in a certain degree the opposed bony surfaces correspond with each other, as do the surfaces of a diarthrodial articulation; and that these are surrounded by the fibrous bands, above alluded to, just as the joints are surrounded and held together by their proper ligaments. Still further, it is sometimes seen, that where the opposed bony surfaces play upon one another, they are covered with a layer of condensed fibrous tissue, which represents the articular cartilage, and which is covered in some rare instances with a perfect and complete synovial membrane. We have thus formed something so closely approaching the appearance and structure of a normal joint, as to be capable of performing its functions, in much too great a degree for the comfort of the patient, and to have given origin to the term, which has now become technical, and which is certainly appropriate, viz.: "false articulation." This mode of union is fortunately quite rare, and in fact but few instances are on record of a fully formed synovial membrane existing between the bones, but less perfect specimens, and partial formations of synovial cavities, are probably to be seen in every museum. Here is one taken from a young man, who was treated in this house about three years ago, and you can see the expanded extremities, the adapted surfaces, and here the smooth portion where a distinct synovial sac existed. The "false articulation," I need hardly tell you, is the most intractable of all the forms of ununited fracture. This case resisted all our efforts to cure it, and was finally amputated.

I call your attention now in the second place to the symptoms of this affection, and the effects it produces on the injured limb. Not that the symptoms of ununited fracture are in any way doubtful or obscure, or the diagnosis of the bare fact of non-union, in any case, difficult, but the careful study of the symptoms and appearances presented in each

instance, will throw much light on the nature of the case, upon the condition of the affected parts, and probably on the causes which may have led to the failure of union. The symptoms are observed in four classes :

1. *Pain and Inconvenience on Motion.*
2. *Deformity.*
3. *Mobility.*
4. *Uselessness.*

1. Of these the first symptom, viz., *pain on motion*, usually characterizes only the earlier stages of the difficulty, while yet the soft parts, surrounding the fracture, have not become accustomed to the displaced condition of the fragments, and before all inflammatory tenderness has ceased in them. In the later and confirmed stages, when the uniting medium has become organized to the highest point it is to attain, and all further reparative movement has ceased, we usually find the parts singularly insensible to handling, and free from pain on motion.

2. *Deformity.*—From the fact that the ends of the bones have not been placed in apposition, and there retained, there is almost invariably found some degree of displacement, in old cases of united fracture, which gives rise to a greater or less degree of deformity of the limb. This deformity is very constantly associated with shortening, as one of its elements, and is apt to increase as the patient uses the limb, and of course in proportion to the laxity of the uniting medium. Besides these changes in the appearance of the limb, there is generally seen a disposition to be twisted on itself, in some one particular direction, or if it be very imperfectly united, it dangles in the most helpless and unpleasant manner, from the morbid point of motion. Finally, it sometimes happens that no deformity is observable while the limb is at rest, but on the patient making the slightest motion, the action of the muscles brings out an angularity, or a prominence of one fragment, or a shortening which then becomes a marked feature of the case.

3. *Mobility.*—This is a constant symptom and is in fact the characteristic sign and evidence of the disease. It may vary from a mere yielding at the point of fracture, when motion is attempted, up to the dangling, helpless condition above alluded to. In all cases, however, it indicates that the essential function of the bone, viz.: its strength of resistance, is gone, and with it its power to transmit the action of the muscles to their proper points or in their proper directions. This also is a symptom which is apt to increase by use, and sometimes reaches the extraordinary extent you observed in the sailor in this hospital last fall, who had an ununited fracture at the middle of his humerus. He, you remember, could move his arm about in all directions and with the greatest facility, at the false articulation, presenting the most extraordinary flexions and contortions that could be imagined, and yet his arm was so useful to him, that he managed to perform most, if not all, of the active duties of a seaman, and was in the hospital with another disease, and with no intention of seeking relief, from what appeared to us to be so serious an injury of his arm. This, however, is an extraordinary and an exceptional case, for as a general rule, any mobility at the

seat of fracture, and particularly in the lower extremity, leads directly and necessarily to—

4. *The uselessness of the affected limb.*—It is this, after all, which constitutes the important feature and serious character of ununited fracture. A limb thus circumstanced, is incapable of performing its ordinary movements with sufficient strength and precision, to do its duty in locomotion, and this more constantly and more completely in the lower extremities, where the office of the bone, in a large share of its movements, is to sustain the whole weight of the body, than in the upper, where such sustaining power is only rarely called into action. This obvious difference in the effect of non-union in the upper and lower extremities, is strikingly marked, in the advantages gained by the use of mechanical supports and appliances. By the help of these in the arm and forearm, the disabilities of ununited fracture can be so far compensated for, that we have on record many cases of women, for example, who, with ununited fracture of the forearm, have been enabled, by the help of proper supporting bandages and splints, to perform needlework, and indeed to accomplish all their ordinary domestic duties, without any very serious inconvenience, and many other like cases, as of the Arab sheik, who was able, with a similar condition of his right arm, to wield his sword, control his horse, and in fact, perform all the duties of his station by the help of a silver cylindrical splint, with which he supported the weakened member. This compensation in the lower extremity, can only rarely and imperfectly be afforded, and consequently it is in these cases as a class, that surgical assistance is most frequently and most imperatively demanded.

One important consequence of this useless condition of the limb, is its atrophy from habitual disuse. This gradually but surely steals on, and is in direct proportion to the amount of disuse, and to the length of time the disability has existed. The limb emaciates, the muscles waste, the bones become light and porous, and in short, the usual effects of atrophy from disuse, show themselves in every part, and in every tissue of the disabled member. This well known tendency toward impairment, suggests this important practical inference, viz., that any operative interference, which may be deemed necessary, should not be delayed unnecessarily long, until atrophy has weakened the tone of the tissues, and their capacity for repair, and thus, not merely diminished the chance of procuring a union of the fractured bone, but also the prospect of recovery from the effects of the operation itself. Of this atrophy, all the specimens before you give more or less evidence ; but this one, a case of non-union after an operation of excision for a deformity of the bones of the leg, illustrates an extreme degree of the degeneration. The bones have become very small, tapering at their cut ends, where you see they are united by ligaments, very light and porous, so infiltrated with oily matter, that although it is now 18 years since the preparation was made, and it has been repeatedly cleaned in ether, the surface is still covered with the exuded oil.

Having glanced at the anatomy and the symptoms of ununited fracture, I have now to ask your attention to a third division of our sub-

ject, embracing the causes of the difficulty under consideration. The careful study of the reasons why a fracture has failed to unite, I regard as of great interest and importance, as throwing valuable light on the nature and condition of each particular case, and on the treatment most appropriate to it, and most likely to be successful in it. In the table that I here present, I have divided the causes of non-union into two great divisions, viz., the constitutional and the local:

1. Constitutional.	I. Diminished power as from	1. Old age. 2. Disease. 3. Debility. 4. Paralysis.
	II. Diverted power as from	5. Pregnancy and lactation. 6. Other injuries.
2. Local.	III. Obstructed power as from	1. Want of apposition. 2. Too much motion. 3. Tight bandaging. 4. Excessive inflammation. 5. Rupture of nutrient artery. 6. Tissues interposed. 7. Necrosed fragments.

The constitutional causes, as you will see by the table, are divided into two classes, viz.: I. Those depending upon diminished power, and II. Those depending upon diverted power, while the local causes may all be included under, III. Those depending upon obstructed power.

I. Of diminished power we have 1. *Old age* acting sometimes as a cause of non-union. Several writers report cases, in which the diminished reparative power of old age, was the cause of a failure of union after fracture, and it may well be conceived, that where all the actions of the nutritive system are so sluggish and so imperfect, and where all the tissues tend so decidedly to degeneration, the complex processes of repair after fracture, might fail to be elaborated to their highest stages of perfection. But it must be borne in mind, that by a wise provision of Providence, the actual failure of nutrition does not occur in old age, till the end is actually impending; and in the same way, the reparative actions are not allowed to be entirely wanting, while occasion may still occur for their use. Accordingly we find that, in fact, nothing but the extreme of enfeeblement from old age, will prevent, or even materially diminish, the chance of bony union, and that at any period, short of the most advanced senility, we may hope for a cure in ordinary cases of fracture. The same is true of the earliest infancy. I happened to be called last summer, on the same day, to three cases of fracture. One was in a gentleman aged about 50 years; a second, was a child aged six months, and the third was in an old lady of 97. All three did equally well.

2. *Disease* of a general and constitutional character, may well be supposed, in certain cases, to prevent or to retard the union of fractured bones. This has been particularly noticed in scurvy, low fevers, cholera, and some other exhausting diseases. Some forms of secondary syphilis are supposed, by some writers, to exert an unfavorable influence on the

union of fractured bones. Whether this is ever the case, except when the bone itself is in a condition of syphilitic disease, I am not able to state. The testimony and opinions of different authors on this point is conflicting and unsatisfactory.

3. *Debility*, when extreme from any cause, may prevent the proper union of fractures. Many cases are recorded, wherein great debility, either following long continued, wasting disease, or from prolonged starvation, has acted to retard and prevent union, and some of you may remember, a few years ago, that we had a striking exemplification of this fact in a sailor, who broke both his arm and his thigh, while at sea, where for many weeks they were on a short allowance of provisions, and in whom, at the end of, I think, nine weeks, no union whatever had occurred of either fracture. That the failure was from no other cause than the debility induced by starvation, was clearly shown by his fractures rapidly consolidating, as soon as he began to feel the invigorating effects of plenty of good nourishment.

4. *Paralysis* will, beyond a doubt, by destroying the influence of the nerves on the vessels, so far modify the nutritive powers as to lead, in certain instances of fracture, to a failure of bony union. The only case in this house which I can now recall, was that of a poor fellow, who, by the same fall, had received an injury of the lumbar vertebra, producing paraplegia, and a compound fracture of the right leg. No repair of the fractured leg taking place, and the patient's condition deteriorating for a considerable period, amputation was proposed as a means of ridding him of one drain on his vital powers, but was abandoned on account of his unpromising state. He nevertheless, after a long time, began to recover from the paralysis, and as the nervous power of the limbs improved, repair began in the fracture and was gradually, but soundly completed.

II. Of the constitutional causes, depending upon diverted power, we have :

1. *Pregnancy and lactation.*—Here the powers of the system seem, as it were, so preoccupied, that they cannot be drawn out to the repair of the injured bone. Of the occasional existence of this, as a cause of non-union, authors are fully agreed, and I well remember one of my earliest surgical cases was of this class, in a fractured forearm, which refused to unite during pregnancy, and united very well after the birth of the child.

2. *Other extensive injuries*, either in the neighborhood of, or at a distance from the fractured bone, seem sometimes to divert the energies of repair from the fracture, to such an extent as to lead to a failure of union. This cause of non-union, I do not find much spoken of by writers on this subject, but in this hospital, where we have to treat such a multitude of severe injuries, it not unfrequently presents itself. Of this we have a striking example, in the case from which this specimen was taken. It was a young, healthy man, who, by the fall of a heavy boiler, broke his arm about four inches above the elbow, and at the same time lacerated the soft parts of the same forearm so severely, that it was fully a year before all the wounds had healed. During this time,

there seemed to be no good reason why the fracture should not unite, but no union took place, and afterwards none could be made to take place, though he was several times operated on with this view. It was finally amputated, and the preparation shows, as you see, a ligamentous union, not very strong, and a partial imperfect synovial capsule. This other case of imperfect union of the thigh bone, was also complicated with a severe injury of another part, viz.: the elbow joint, and so evident to my mind, was the interference of one of these injuries, with the repair of the other, that I recommended him to lose his arm, to save his thigh. He would not consent at that time, and when he became willing, the golden opportunity had passed by. He died exhausted by the vain attempt at repairing two severe accidents, either one of which, I think, he would have had constitutional vigor enough to have surmounted.

III. We have next to consider the local causes, which, as you see on the table, are all embraced in one division, viz., that of obstructed power. Under this head, we have:

1. Those cases where the obstruction to union arises from *want of proper apposition* between the ends of the broken bone. This is always an unfavorable circumstance, both as regards the strength, and the promptness of the union, and in some aggravated cases, it is undoubtedly the cause of its entire failure. But that by itself, even when existing in a very great degree, it is not always an impediment to complete union, is a matter of every day observation. Here is a specimen, in which, with a double fracture of the thigh, none of the fragments of which are in proper position, a firm union has taken place. This other specimen also, in which the bones have so ridden by each other, that two inches, at least, separate the broken extremities, shows the process of ossific union advancing rapidly. And here perhaps, I should call your attention to the fact, that none of the causes of non-union, either local or constitutional, must be expected, in all cases, to produce an unfortunate result. The truth is, that these causes should be regarded as tending to the obstruction of firm bony union, and as interfering more or less with the completion of the various processes through which this union is elaborated, but not as capable, in any large proportion of cases, of preventing it. Failures of union, therefore, you must understand, even where these causes of failure exist in a very marked degree, are rare and exceptional. The reparative powers are so great and so intelligent in their action, that they are able to triumph over the larger proportion of the obstacles which may be placed in their way, and consequently we have firm bony union taking place in the vast majority of all fractures, in spite of these unfavorable circumstances, which we are now considering, and which only occasionally act as obstructing and preventing causes. Want of apposition, then, may be regarded as in itself an unusual cause of the failure of union, but as occasionally competent to produce that result, and eminently likely to have that effect when combined with,

2. *Too much motion* of the injured limb, during the treatment of the fracture. Reason, as well as instinct, seem to point to the rest of the

broken limb, as the proper condition for its favorable union; and if this rest cannot be secured, either from the circumstances of the patient, or from the necessities of the animal, we expect to see a proportionally unfavorable result. These two last causes, viz.: want of apposition, and undue movement, when taken together, are undoubtedly a not uncommon cause of non-union, but at the same time it is surprising to observe, how great a degree of motion, during all the time of treatment, is compatible with a firm and often with an undeformed union. This is illustrated, not only in the inferior animals, where constraint and rest are difficult to be secured, but often in this hospital, in the case of young children, whom it seems impossible to keep in any reasonable degree quiet, and yet in the end a good cure is obtained.

3. *Tight bandaging* is spoken of by writers on this subject as a cause of non-union, and their unanimity on this point would seem to warrant the belief that it is so. It seems to me, however, that if it ever be so, it must be, from such a recklessness of ordinary surgical precautions, as only needs to be mentioned, to be avoided.

4. *Excessive inflammation* at the seat of fracture. During the first few days after a bone has been broken, inflammation of all the injured tissues arises, as a direct result of the violence which they have suffered, and during the existence of this inflammation, no reparative exudation is poured out. It is only after this common inflammation has passed away, that the actions of proper repair commence. Now if from any cause, as from severe contusions, from detached fragments, or from rough usage in transportation, this inflammation should be more than usually severe, the time for the commencement of repair, will be proportionally delayed, and there is always a certain degree of danger, that the inflammatory actions may go too far, and may pass the stage at which resolution is possible, into the stage of suppuration. This unfortunate circumstance has happened to us in several instances in the last few years, and entails many severe and important consequences, one of which has been a more or less complete interference with the disposition to union. Even in those cases, where inflammation does not reach so high a point as to produce suppuration, its long continuance, by postponing the commencement of the reparative action, seems so to thwart nature's intentions, as sometimes to put her altogether aside from her original purpose of repair.

5. *Rupture of nutrient artery.*—The principal vascular supply of the central substance of the long bones, is derived from the nutrient artery, which in the femur, and in the bones of the forearm, enters the bone, in a direction from below upwards, and in the humerus and tibia, from above downwards. Now it is easy to conceive, that if a humerus or a tibia is fractured above the point of entrance of this artery, or a femur or ulna, below the same point, that in the first case the upper, and in the second case the lower, fragment will necessarily be cut off from the direct vascular supply. This has been supposed to exert some influence in determining the non-union of the fracture, and M. Gueretin has collected a table of thirty-five cases, which gives some statistical support to this idea. Dr. Norris of Philadelphia, however, has brought

together forty-one cases, and examined them in the same point of view, and as his results do not at all correspond with those of M. Gueretin, the question would seem to be not definitely settled.

6. *Tissues interposed* between the broken fragments, may act in one of two ways to defeat bony union. 1. By keeping the broken ends widely separated. 2. By shutting them off from bony contact. This latter seems to me the most effective agency of the two, as from analogy, contact of the fragments seems to be essential in determining bony union, and even if action should begin and bony matter should be thrown out, yet the interposition of a layer of muscle or of tendinous expansion will, it seems to me, necessarily tend to prevent its consolidation. In our own experience, we have found this to be a common cause of non-union, though so high an authority as Dr. Norris doubts whether in itself it can ever be so considered. I show you here a specimen of a broken femur, taken from a patient in this house, where we found the combined tendons of the extensor muscles interposed between the fragments, and preventing their union, and you observe in these fragments, that no action whatsoever has taken place, except a very considerable degree of atrophy. The same thing existed in a patient of Dr. Watson's, a young girl upon whom he operated a few years ago, for an ununited fracture of the arm, and I expect presently to demonstrate to you the same condition of things, in the patient upon whom we are proposing to operate this morning.

7. *Fragments of bone and foreign bodies* when lying between the fractured extremities, will often prevent or obstruct the process of union, by exciting and keeping up excessive suppuration. Of course when I speak of fragments of bone acting in this manner, I refer only to such fragments as are so completely detached as to lose their vitality, which then play the part of a sequestrum, or of any other foreign body. This occurs most frequently, in compound, but sometimes in simple fractures, and is perhaps more often a cause of imperfect or delayed union, than of non-union, as nature often seems to provide against the difficulty, by throwing out a superabundance of reparative matter, which incloses the broken ends, foreign body and all, in one strong casing, which becomes finally a firm bond of union, and particularly so if after a time, the foreign body, as is often the case, is got rid of. This is well exemplified in this specimen, where this small dead fragment is seen to have prevented direct union, and when the material of repair has been thrown out in a bridge form over and around it. You see also that in this case, the union is not firm, from deficiency of material. Here is another beautiful specimen, in which this large necrosed fragment of the femur, almost altogether prevented the actions of repair.

I regard this minute and careful study of the causes of non-union of fracture as exceedingly necessary and useful, in giving us correct and precise ideas, not only as to the nature of each particular case, but also as to the most appropriate method of treatment, to which subject I must now ask your attention.

A large number of the cases in which, after the lapse of six weeks or two months, no union has occurred, are, as I before intimated, merely

examples of delayed action, and only require additional time for the completion of the process. This delay may occupy several months, and a final good result be obtained; and it is, therefore, imperative that every case that we cannot clearly make out some local impediment, should have the advantage of this additional time. Setting aside these cases, we now confine ourselves to the consideration of those which, after a liberal allowance for delay, still refuse to unite. Without attempting to be too minute, we may range the principal methods of treatment which have been employed with success, under eight heads.

Medical.	1. Friction and Pressure.	Surgical.	5. Drilling.
	2. Counter-irritation.		6. Seton.
	3. Electricity.		7. Resection.
	4. Salivation.		8. Amputation.

1. One of the earliest and simplest methods of which we have any account, and perhaps the first to be employed, is the *friction of the broken ends* upon one another, so as to excite some degree of pain and soreness about the fracture. This procedure, repeated until considerable action is excited, and then combined with moderately firm pressure of splints, and a longer time allowed, will undoubtedly be sufficient, in certain cases, to secure a good result. It is principally applicable to cases in which the local impediments to union are not serious, and when the powers of repair merely require to be roused into action.

2. *The application of blisters or other counter-irritants* to the integuments, in the immediate neighborhood of the injury, seems sometimes to act as a stimulant to the sluggish actions, and to provoke the throwing out of the reparative material. This method, though approved by many authors, has not, as far as I know, been used to any extent in our hospital.

3. *Electricity* passed through the limb, either in the form of shocks, or of a continuous electro-magnetic current, would very naturally suggest itself as a means of exciting deep action in an ununited fracture. We have employed it in this house very extensively, occasionally in connection with acupuncture, and we have generally been disposed to attribute some efficacy to it, in cases where union was long delayed; but of its successful employment in an old case, I have no experience.

4. *Salivation* has been thought by some to produce such a change in the condition of the ends of the bones, in an old ununited fracture, as to render them more disposed towards union, and some successful cases are reported by reliable observers. I do not think it has ever been employed in this house, to a sufficient extent to test its value, and authorities are by no means unanimous in recommending it.

These four methods embrace, what may be called, the medical treatment of ununited fracture. They aim to excite actions which shall be favorable to union, by remedies not directly applied to the faulty part. The remaining four on the table, embrace the more strictly surgical methods of treatment, and they depend for their efficacy on operations changing the condition of the ends of the bones, of these we have:

1. *Drilling* the broken extremities, in such a manner as to wound, as far as may be, the opposed surfaces, and thereby to reproduce in a

certain degree, the condition of recent fracture. As we now perform it, it was first suggested by Dr. Brainard of Chicago. The operation consists in making, first, a minute puncture through the skin, near the seat of fracture, and then introducing such a drill as this I show you, which is nothing more, in fact, than a long carpenter's drill, and with it boring in various directions, wounding as far as possible the surfaces of bone which are in contact with each other, and traversing the ends of the fragments, as often as may seem necessary, to excite some action in their bony tissue. This operation may be repeated every eight or ten days according to the effects produced, or until union is found to be commencing, the parts being kept in the meantime in good apposition and at rest. The principle of this operation is, by the wounding of the broken extremities of the bone, to excite, by that means, anew, the disposition in the parts to throw out reparative material. It is supposed that when, in any case of fracture, the reparative nisus has failed of its effect, the disposition to repair ceases, in a great degree, and even if the obstructing cause be removed, the parts will remain quiescent, until the reparative effort is, in some way, again aroused. This is in fact the principle upon which are founded all the surgical procedures, which have gained any repute, in the management of these cases. This operation by drilling is a simple, easy application of this principle, and its subcutaneous character, while it does not impair its efficiency, renders it less liable to produce evil consequences. In its present form, it is too recent to be precisely appreciated as to its result, but it has been sufficiently tried to show, that in a certain number of cases, it will suffice for a cure. We have employed it in a number of cases, in this hospital, and in some of them, with a very satisfactory success. It has the great merit of being comparatively safe, and in a certain class of cases, not the worst, is a very valuable surgical resource.

2. *The seton.*—This mode of treatment consists in passing a seton of silk, or india-rubber, between the ends of the bones, and leaving it there, until sufficient action has been excited, to produce the exudation of bony matter. The limb is placed in proper supporting apparatus, and time given for consolidation to ensue. This treatment originated with Dr. Physick of Philadelphia, though probably first suggested by Winslow, in 1787. There are several modes of applying this principle of the seton. Dr. Physick originally left the seton in its place for several months, or until union became firm. Others have removed it before it had done more than excite common inflammation along its course, trusting to this excitement to terminate in bony exudation. Some have passed the seton near, instead of between the bones; others have used a wire, passed round the false joint, and others again wires, passed between the bones. All these act on the same principle, viz.: the exciting of specific bony action, by the previous production of common inflammation. This plan of treatment has now been in use so long, and so extensively as to be fully established as a valuable, and in appropriate cases a successful operation; but, it is a striking instance of national prejudice, that scarcely one of the great names of England, France, or Germany, is willing to accord to it anything more than an equivocal position, as a remedial resource in ununited fracture.

3. *Resection.*—This operation consists in exposing the false joint by an incision, and removing the ends of the fragments, so as to present fresh-cut surfaces in the wound. The bones thus freshened, are either kept in place by splints and bandages, or they are fastened together by silver wire, which secures their more certain and accurate contact. This is a most powerful means of exciting action in obstinate cases, but it has the serious disadvantage of severity and danger. The injury is necessarily converted from a simple, into a compound fracture, and this circumstance alone, particularly in the larger bones, is sufficient to account for the fact, that the operation is not unfrequently fatal. It is, therefore, only to be regarded as the last resource of surgery, and not, even as such, to be lightly resorted to.

4. *Amputation* of the disabled limb. This cannot be classed as one of the means of cure, in pseudarthrosis, yet it must be included in this category, as one of the things which is sometimes required to be done. It can only be properly regarded, as a means of ridding the patient of what cannot be cured, and is in no case more strongly felt to be the opprobrium chirurgorum.

I regret that the time will not allow me to be more full and complete, in this outline sketch of this interesting subject. I am obliged to touch each topic lightly, and omit many whose importance entitles them to consideration. The whole matter will well repay your further study, and for those of you who desire to follow it up more fully, I know of no article which embraces, in a short compass, more valuable information on this subject, than a paper by Dr. Norris, of Philadelphia, in the *American Journal of the Medical Sciences*, vol. xxix., for the year 1842. The articles in the *Cyclopedia of Practical Surgery*, on "Fracture," also embrace much valuable information on the subjects we have been considering.

The case we present you to-day, is one in which we propose to perform resection, and we choose this operation for reasons which, you will presently see, exclude all others. The patient is a feeble, delicate woman, who, about 12 weeks ago, received a simple fracture of the lower end of the femur. She was treated by an excellent surgeon in the country, in the straight apparatus, but no union occurring at the end of six weeks, the starch bandage was applied, and she was sent to me in the city, on the 15th of October last. By this time, unfortunately, a large bed-sore had formed, and what was worse, the upper fragment had worn through the integument, and was presenting on the front part of the thigh. These two complications have absorbed our attention since her admission, and we have been trying to keep the protruding bone from doing any further mischief, while we have been securing the improvement of the bed-sore. By means of the water bed, and by the help of the various contrivances you have seen, to keep off, or to diminish the effect of pressure, this formidable bed-sore has assumed a clean and healthy appearance; but in the meantime, the protruding fragment has gradually worn its way clean through the skin, and is provoking a suppuration which is daily increasing. You perceive that the fracture is about four inches above the knee joint, and that the end of the upper

fragment is so bevelled off from behind forwards, as to be as sharp as a chisel on its anterior edge, and it is this sharp, chisel-like edge, which, in the original injury, cut its way through the anterior mass of the femoral muscles, and lodged, in the first instance, just under the skin, through which it has since made this perforation. You can easily see, from this diagram, how when such a perforation as this, of the muscles surrounding a fracture, takes place, and when the fragment is so far thrust through them as to be felt just under the skin, that there must necessarily be a plane of muscular tissue lying between the ends of the upper and lower fragments, keeping them apart, and preventing the possibility of their coming in contact. This, as I have told you, is not an infrequent condition, in fractures of the lower end of the femur, and if not removed immediately on the occurrence of the injury, by powerful extension of the limb, and such other manipulation as will disengage the upper fragment from its lodgment in the muscle, it remains as a most effectual preventive of union, and in our experience is, perhaps, the most common anatomical condition, in the cases which, at the lower end of the femur, refuse to unite. It is evident, however, that it is only in the thigh and the arm, that it could be expected to occur, as it is only in these situations that the bone is entirely surrounded by muscles. In this condition, of a thick layer of muscle interposed between the fragments, you can easily appreciate, that none of the usual means of exciting action in ununited fractures, can be of the least avail. Pressure, electricity, salivation, even drilling, or the seton, cannot bring about union, in parts which are not in contact with each other, and nothing evidently can be done effectively, until, by the removal of the interposed substance, the bones can be brought actually into contact. Now this removal, it is usually absolutely impossible to effect, by extension and manipulation, at any time after the first receipt of the injury, and this by reason of the adhesions which soon take place of the parts around the fractured extremities. The only resource we have, therefore, is resection, whereby the protruding end being cut off, and dissected from the perforated muscle, can be brought again into contact with the lower fragment, which in this case lies behind it.

For these reasons, as I said above, we have at once decided on exsection, or resection, as it has become fashionable to call it, and we have less hesitation in performing this serious operation, as by the protrusion of the bone, the injury has already assumed the severity and dangers of a compound fracture. And here, I must beg you to notice, that we have not the usual privilege of waiting till the patient's condition shall be most favorable for operation; for while the bed-sore is improving, the condition of the parts at the fracture, is growing worse, and suppuration is extending. If anything is to be done, therefore, we are obliged to seize the present moment for doing it, and it must be acknowledged that with all the complications of the case, it is exceedingly unpromising. I operate solely because, if left as she is, she must die from the progress of the local mischief, which progress, the operation affords the only chance of arresting.

(The operation being performed, verified the diagnosis of the upper

fragment being thrust through the extensor muscles, in such a manner, as to interpose a thick layer of muscular and tendinous tissue between the broken ends, and it was found necessary to dissect the bone from the surrounding tissues, so strong were the adhesions it had contracted, and in the same manner to separate the lower fragment before they could be brought in contact. The upper fragment was then sawed off about one inch, and the lower was gnawed off with the rongeur. They were then brought together, and came well into apposition, while the limb assumed so satisfactory a position, that no silver wire was used to confine the opposed ends, as was at first intended. For a time, everything went on favorably, but it was soon found, that the irritation and discharge from an enormous bed-sore, which soon again increased in size, together with the suppuration from the wound, were too much for her powers, already much taxed and exhausted by long continued confinement and suffering. She sank gradually, and died about three weeks after the operation. No apparent attempt at union had taken place.)

April 5, 1859.

ART. VII.—*Report of the Proceedings of the Medical Societies and of the Practice of the Hospitals in New York; prepared for the* NEW YORK JOURNAL OF MEDICINE, by GEORGE F. SHRADY, M.D., Resident Surgeon to the New York Hospital.

NEW YORK HOSPITAL.

IN the last number I referred to the treatment of fractured thighs by the N. Y. Hospital splint. I cannot however complete all I have to say upon that subject without alluding to Burge's apparatus. This splint is rapidly gaining favor in the profession, and, as far as my observation in the treatment of the cases in this institution is concerned, I think that there are no advantages claimed for it by the inventors, which it does not possess. I shall not enter into any description of the apparatus, nor discuss the various advantages claimed for it; they have been fully set forth in a paper in a previous number of the Journal. We have treated six cases by this new apparatus, and thus far no shortening nor deformity has resulted. The great advantage that it possesses in my opinion is *comfort* to the patient, by which means he is enabled to bear confinement, better than in the ordinary straight splint. This certainly is a point which should not be lost sight of in the treatment of these fractures in tuberculous patients.

The new point of counter-extension is also deserving of note. Taking everything into consideration, I think the apparatus is unsurpassed. It seems susceptible of very little if any improvement. The surgeons of the hospital all seem to think well of it.

The treatment of fractures of the leg is not peculiar. We first place the limb in the bran-splint or fracture-box until all the swelling has subsided, next the side splints are applied. These are two in number, and are shaped like a boot, made of thin wood, and nicely padded.

The limb is first bandaged from the toe as far as the knee, the splints applied on either side and secured; pieces of blanket being stuffed in the spaces left between the splints and limb, in order to equally distribute pressure. When the union is sufficiently firm to allow it, the starch bandage is applied, and the patient is enabled to get about the ward by means of crutches. The compound fractures are treated almost altogether by this bran-splint.

Since the last appearance of this report, Drs. Halsted and Watson have been the attending surgeons. The following operations have been performed by them during the past month: Ligation of the Femoral; and perineal section by Dr. Halsted. Three amputations of the leg; and puncture of the knee joint for sub-acute synovitis, by Dr. Watson.

Dr. Halsted performed the operation of perineal section for stricture of the urethra, upon a patient aged 35, with the following history:

Sixteen years ago he contracted gonorrhœa, which was followed at the end of eight years by an organic stricture. This stricture was treated in the ordinary way, by dilatation, and was progressing favorably until six months previous to his admission, when he suffered from a renewed attack of inflammation, which caused complete retention. He applied to a physician, who relieved him; at the same time made for him a false passage. Since that time he has passed his water with a great deal of difficulty and pain. At the time of his admission there was an induration in the perineum about the size of a goose egg, which he said had existed since the instrument had been introduced. After employing local depletents for a time, until the tenderness which had existed over the tumor had subsided, an attempt was made to dilate the stricture by conical bougies. This treatment was persevered in for a considerable length of time, but the induration of the perineum was so extensive that it was finally decided that he could only be relieved by an operation. A small bougie was first passed through the stricture, an incision about three inches in length was made in the median line; coming upon the stricture, it was divided, and a female catheter was passed into the bladder. On attempting to pass a male catheter through the urethra into the bladder, the instrument was arrested at a point about two inches from the meatus, where a second stricture was found to exist. The incision in the perineum was then prolonged upwards, in order to divide this constriction; when this was effected about three inches of the urethra was laid open. A No. 10 catheter was introduced and allowed to remain for three days, at the end of that time it was removed, and passed only at such times when the patient wished to urinate. It is now about six weeks since the operation, and the wound in the perineum has almost closed up, and a No. 10 silver catheter can still be passed, though with considerable difficulty. He can pass but a very small amount of water without the instrument. This case is interesting on account of the extent of division of the urethra, followed by such an apparent good result; though it is feared, notwithstanding, that the canal will be finally strictured.

The ligature of the femoral for popliteal aneurism was performed also by Dr. Halsted. The patient first noticed a swelling, about the

size of a hen's egg, in the left popliteal region, ten days before admission. This tumor gradually increased, so that at the time of admission it was nearly as large as a fœtal head—causing the limb to measure in that situation, over the patella, two inches more in circumference than its fellow. The pulsation was perfectly distinct, and could be arrested for a time by pressure upon the artery above; in fact, the case presented all the ordinary symptoms of aneurism in that locality.

The artery was exposed in the usual way and ligated; immediately on tightening the ligature, the bruit and pulsation ceased. The aneurismal tumor became solid, and the wound healed kindly, the ligature coming away at the end of the 19th day. The circumferenee over the popliteal region is now an inch less than previous to the operation, and the tumor is about the size of a hen's egg.

Dr. Watson lately performed an operation upon the knee joint that is of a good deal of interest in a practical point of view. I refer to puncturing the knee joint for sub-acute synovitis. The patient is a young man, 21 years of age, though of strumous habits, has generally enjoyed good health up to two years ago, when he first began to be troubled with pain in the right knee, which was followed by a considerable amount of swelling in the part. This swelling has gradually and slowly increased, until the time of admission, when the knee of the affected limb measures in circumference two inches more than its fellow—fluctuation distinct, and the patella is elevated. This distension extended a hand's breadth above the upper margin of the patella, on the anterior aspect of the thigh. Patient suffered no considerable amount of pain, except by pressure over either condyle, particularly the inner. Patient's general health was undisturbed.

The ordinary remedies were tried, but seemed to be attended with no relief, and about two weeks after his admission it was deemed best to puncture the joint and let out the fluid. This was accordingly done by Dr. W. The puncture was made about one inch above the inner condyle, with a curved, sharp-pointed bistoury. About two ounces of rather thick, serous fluid, and a slight amount of apparently puriform matter flowed out. The opening was dressed with adhesive straps, and water dressings were kept constantly applied. It is now about a week after the operation; the adhesive plaster has been removed, and union is found to have taken place by first intention. A small quantity of fluid has collected since the operation; the patient is otherwise doing finely.

The Dr. intends soon to make another puncture, and inject into the cavity of the joint a solution of the perchloride of mercury, following out the practice of the late Dr. Hubbard, of New Haven. The idea is to change the pyogenic character of the secreting surface.

Of the three amputations of the leg by Dr. W., one was for consecutive hemorrhage in a compound fracture, in which the anterior tibial artery was eroded by the edge of one of the fragments. The other two were for severe compound comminuted fracture. Alanson's method was resorted to.

Dr. Parker, who is now on duty, a few days ago performed amputation of the thigh of a patient 21 years of age. The history of the case is as follows: About ten days previous to admission, while at sea, he sustained a fracture of the right thigh, low down, which, according to

his account, was attended with a good deal of ecchymosis. There being no surgeon to the ship, the limb was put up after a fashion by the mate. Two short side splints were applied with a tight bandage. On admission into the hospital, the limb was very much swollen, and the pressure of the internal splint had caused a superficial slough over the inner condyle. On examination at the time, it was supposed that the femur had been fractured just above the condyle, and that the condyles had also been split. He complained of a good deal of tenderness around the knee-joint, which seemed to be the seat of inflammation. Local depletion was resorted to with the limb on the double inclined plane. The thigh still continued very much swollen, and the superficial slough over the internal condyle separated. The opening thus made was found to communicate with the joint, synovia flowing from it. The whole thigh was found to be a bag of fluid, nearly as high up as the trochanter; filled with decomposed blood and purulent matter, which by pressure would find its way through the opening alluded to. A counter opening was made on the upper part of the thigh, but this seemed to do but little good. The patient's system being very much lowered by this condition of things, it was agreed that the best thing that could be done, would be to amputate—and leaving everything open, allow free exit to matter. This was accordingly done by Dr. Parker, through the middle of the thigh, by Alanson's method. The patient is now doing pretty well, but is not yet out of danger. The limb was examined after the operation, and the femur was found to be fractured obliquely, immediately above the condyle; the lower portion of the upper fragment riding over the external condyle, lacerated the synovial membrane at that point. The condyles were partially split through. The whole tissues of the thigh were infiltrated with grumous fluid, forming an immense abscess.

LONG ISLAND COLLEGE HOSPITAL, BROOKLYN.

Report of Cases by JOHN G. JOHNSON, M.D., Adjunct Surgeon to the Hospital.

Case 1.—*Fistulous opening of the small intestines through the umbilicus, the result of injury.* (Service of DRS. DANIEL AYRES and J. G. JOHNSON.) John Ratchford, an Irish lad ten years of age, living at 40 Raymond street, was brought to the hospital with the following history: He had enjoyed perfect health up to December, 1857, when, at the burning of the public school-house, in Navy street, he jumped from the second story window, striking his abdomen on the frozen ground. About two weeks afterwards he had constant pain in the abdomen and frequent movements of the bowels, which were always in the form of a diarrhœa. In the latter part of January the abdomen became swollen and painful, with constipation requiring the use of enema and ol. ricini to effect a movement of the bowels. About the middle of August a well-defined tumor made its appearance suddenly in the umbilical region, preceded by vomiting, purging and abdominal pain.

This tumor surrounded the umbilicus, extending on either side to the linea semilunaris. On percussion it was resonant, hard and slightly tender to the touch, and red around the umbilicus. The boy was emaci-

ated, had fever at night and great thirst. A week later, while under manual examination, pus was seen discharging from the umbilicus. A half pint of pus continued to discharge a day.

November 1st, he was again brought to the hospital. There is general emaciation—much more than when last seen—pallor, a pinched appearance of the countenance, coldness and blueness of the extremeties, very little appetite, sleeps badly, is restless and tosses about; great thirst, with but small scybalous passages per anum. The tumor has disappeared from the abdomen, a fistulous opening exists at the umbilicus, around which the integuments are excoriated and raw. Through this fistulous opening there is a constant discharge of a light yellowish, semi-fluid character, with very slight fecal odor and containing nearly all the food taken in a partially digested condition and particles of undigested food. The opening is probably into the small intestine, but a short distance below the ductus communis choledochus judging from the character and slight odor of the discharge. The mother states that several quarts are discharged daily through the fistula, and it is evident that but very little finds its way into the circulation. The mother was advised to have the patient admitted into the hospital, he previously having been an out-door patient.

The treatment designed was to enlarge slightly the external orifice, and by careful exploration passing one point of Dupuytren's forceps above, and another below the septum which existed in the bowel, gradually destroy it, and thus reëstablish the natural course of the intestine, and afterwards by a plastic operation close the external opening.

It is greatly to be regretted that the patient was not admitted to the hospital, as it was proposed to establish some experiments on digestion, similar to those interesting ones of Professor Bush, which Dr. Bauer has recently presented to the profession.

His mother declined having him admitted to the hospital, and he was directed to wear a compress over the fistula to retain the contents of the bowel. He was directed to use beef tea and other kinds of food easily digested by the stomach, together with enema of the same. The treatment, however, was but imperfectly carried out, and the child died of inanition in the latter part of December, 1858, one year from the receipt of the injury. An autopsy was desired, but refused.

Case 2.—*Stricture of urethra—Perineal section.* (Service of Drs. Daniel Ayres and J. G. Johnson.)—Charles Webster, a native of Denmark, a sailor thirty-eight years of age, on the 25th of December, 1857, while on board the ship "Aurora," received a violent blow on the perineum from a piece of grating.

They had encountered a severe storm, and shipping a heavy sea, the piece of heavy grating was thrown against the perineum, crushing the urethra so that the surgeon of the ship states that he had great difficulty in drawing his water. He was incapacitated from work and the surgeon continued to draw his urine during the remainder of the voyage, using a medium sized silver catheter. He was advised to place himself under hospital treatment immediately on landing, which he neglected to do, till about the 1st of February, 1858, when he was admit-

ted to the New York Hospital, under the care of Dr. John Watson, for retention of urine.

The patient states that Dr. W. tried various sized instruments, but was unable to introduce the smallest flexible bougie. Potassa fusa was introduced in a bougie and allowed to remain for fifteen minutes in contact with the stricture; three days afterwards careful dilatation was commenced and gradually continued till a full sized instrument could be introduced. The introduction of the bougie was now discontinued, and in two months the stricture was so firmly contracted as to render the introduction of any instrument impossible. The surgeons of that institution desired to operate upon the stricture, which the patient declined to submit to, and he left the hospital. He was admitted to the Long Island College Hospital, August 3d, 1858.

Condition on admission.—It was impossible to introduce the smallest sized bougie. The urine was forced away drop by drop, with great trouble. The patient employing almost his whole time in his endeavors to evacuate his bladder. There was a strong ammoniacal smell to the urine, and the bladder was at no time emptied. The corpus spongiosum anterior to the scrotum, the scrotum itself, and also the perineum were much distended, dense and inflamed, showing a deeply seated abscess forming anterior to the stricture. The stricture was immediately in front of the bulbous portion of the urethra. Examination per rectum showed the prostate much enlarged and very tender. The neck of the bladder was also dilated. The abscess was immediately opened and warm fomentations applied which quickly relieved the pain. The stricture was carefully tried from day to day, till the ninth day after the admission, when a No. 1 grooved staff was introduced into the bladder. The induration of the abscess having subsided it was determined at once to divide the stricture. The stricture was found cartilaginous for full three-fourths of an inch of the urethra which was freely divided. A director was then passed through the wound into the urethra, posterior to the stricture, and a No. 9 catheter passed down to the stricture and pressing upon the director as a guide, entered the bladder. Upon the introduction of the catheter the patient was enabled to pass his water freely. The catheter was allowed to remain till the fourth day, when it was changed for No. 11. The wound healed kindly and there were no circumstances worthy of note afterwards; the patient was discharged cured on the 5th of September, 1858.

Case 3.—*Extensive fæcal abscess, result of inflammation following a punctured, lacerated and penetrating wound by the side of the rectum.* (Service of DRS. DANIEL AYERS and J. G. JOHNSON.)—Thomas Anderson, 40 years of age, a machinist by occupation, was admitted to the L. I. College Hospital, on the 30th of August, having been brought in a carriage and walking into the house with the greatest pain and difficulty, in a stooped posture, supported by his attendants. He was exceedingly emaciated, with frequent pulse, entire loss of appetite and symptoms of hectic. Not having slept soundly for several weeks, his nervous system was completely exhausted. The following history of the case was elicited. About four weeks previously, while engaged at

work in riveting boiler plates in a stooping position, he was in the act of sitting down upon a stool which was behind him, where one of his fellow-workmen, by way of a joke, placed an oil feeder such as is used for oiling machinery, having a long and pointed nozzle. The nozzle of this feeder was five inches long, blunt pointed, about one-half inch in diameter as its base. The nozzle of the feeder penetrated his clothing and entered the pelvis between the rectum and its bony walls to its full length. Violent inflammation quickly followed the injury, attended with intense pain and severe constitutional symptoms, confining him to bed; all motion of the parts involved being followed by an aggravation of his sufferings, defecation and micturition caused intense agony; extensive suppuration quickly followed. The matter burrowed in every direction in the loose cellular tissue, dissecting the rectum from its natural connections infiltrating the perineum as far forward as the scrotum, and laterally to the tuber ischii, ultimately finding vent into the rectum above, and upon the perineum in several places, from which masses of disorganized cellular tissue were floated out with enormous quantities of fetid pus. This continued to be secreted in such quantities that at one dressing more than a half pint was discharged. The effects of such a drain was soon manifest in an exhausted and debilitated constitution, fully accounting for his condition on admission.

Treatment.—A long bistoury was passed through the wound in the perineum and brought out into the rectum through the opening already made in that organ by ulceration, which was about three inches above the anus. The whole mass included in this space was freely incised, after which all the fistulous sinuses were divided throughout their whole extent, thus giving free vent to the intestinal discharges and to all secretions.

The hemorrhage was free but was suppressed by filling the wounds with sponge, which was allowed to remain till the next day, when it was removed and its place supplied by lint, soaked with Labarraque's solution. The wounds were filled from the bottom with this dressing which was retained in its place by a T bandage. The patient was ordered ten drops of the muriated tincture of iron three times a day in an infusion of bark, a liberal allowance of ale, and as good food as he could take. His relief from suffering was immediate, and all his bad symptoms rapidly disappeared. The wound was touched from time to time with a solution of nitrate of silver and granulated rapidly, so that he was discharged well on the 3d of September.

Case 4.—*Popliteal aneurism, cured by seventy-two hours' compression.* (Service of Drs. Bauer and Whaley.)—James Ferry, twenty-four years of age, a bar-tender of dissipated habits, was admitted to the Long Island College Hospital, September 28th, with the following history: Seven weeks prior to his admission he noticed that his right limb commenced swelling, for which, as it did not subside, he applied for admission to the hospital.

Condition on admission.—Pulse ninety-six, rather feeble, heart sounds normal, appetite indifferent, three or four alvine evacuations daily. Has had gonorrhœa, but not syphilis. The swelling of the right limb

commences about six inches above the knee joint and extends to the toes; apparently a serous infiltration into the cellular tissue. The temperature of the limb is slightly elevated when compared with the rest of the body. In the popliteal space there is a circumscribed pulsating tumor upon which the skin slides. An aneurismal bruit is distinctly heard and the pulsation of the tumor ceases upon compression of the femoral artery. There is tremor of the muscles and the prodroma of delirium tremens which soon supervened; in connection with the delirium tremens he had an attack of dysentery, which placed him in a precarious condition. He recovered from both of these, and on the 15th of October it was deemed advisable to commence the treatment of the aneurism. He had previously been put upon the dilute mineral acids and iron to improve the condition of his blood, as he was extremely hydraemic. Ligaturing the femoral artery was deemed out of the question on account of the bad state of his constitution, and the following method of compression was devised by Dr. Bauer. An india-rubber air hand-ball was placed in Scarpa's space over the femoral artery, and held in its place by the tourniquet; previous to applying it the limb had been strapped from the toes to the knee. The œdema continuing in the leg, a padded sheet iron splint was placed under the leg and held in its place by a bandage.

After the application of the tourniquet the leg was elevated. As he complained of no pain the ball was kept in its place for seventy-two hours. On its removal it was found that a slough of the integuments had taken place under the ball. The limb had diminished greatly in size, and pulsation was still distinctly felt in the aneurism, but feebly, and the tumor was harder. The dressings were removed and the limb simply bandaged from the foot upwards. The ulcer was regularly dressed and patient kept on dilute nitric acid and the muriated tincture of iron, five drops of of each three times a day, with best house diet. On examination of the aneurism one week later, it was found that the pulsations had entirely ceased, and also that no pulsation could be detected in the femoral artery below the point where pressure had been applied. The leg was greatly diminished in size, the tumor still soft and compressible, and two arteries, one on either side of the patella could be easily felt pulsating. A soft pad was now placed over the aneurism and a bandage neatly applied over the whole limb from the toes to the groin, and absolute rest enjoined until November 9th, when a starch bandage was applied, and the patient discharged cured. He has been seen within a few days and the cure was found to have been permanent.

Fœtal malformation.—The following interesting case was presented for demonstration at the theatre of the Long Island College Hospital and kindly added to the anatomical museum of the institution, by Dr. Arnold Hallet, who has also furnished the following history:

Mrs. S. was delivered in November, 1858, of a female child at her fifth pregnancy. The previous children at birth were sound and perfectly healthy. This last took place at the eighth month of gestation. The cyst in which the brain was inclosed was ruptured during labor, and consequently the latter had escaped. The most interesting feature

of the case consisted in the position of the heart, which was completely external to the thorax, and could be felt to pulsate between the fingers. The stomach, intestines, liver and spleen were also protruded from the body in consequence of the absence of their abdominal coverings. The only evidence of life was in the heart, which continued to pulsate for an hour and a half after birth. At first its action was very strong, but gradually became more and more feeble until finally it ceased. There was no effort at inspiration.

On removing the pericardium, that the action of the heart might be seen more distinctly, it was noticed that the right auricle was the last to cease its efforts, thus confirming the generally received opinion that this part is the last to cease its contractions at death.

The placenta was almost immediately in contact with the fœtus, the cord being not more than one inch and a half in length.

A case somewhat analogous to this was also presented to the College Museum, by Dr. Daniel Ayres, in which the growth of the left leg and thigh has been arrested, and in which the mesentery is attached along its whole length from its junction with the trunk to the heel.

All the abdominal organs are exposed to view; the abdominal walls being entirely absent. It was likewise anencephalous.

NEW YORK PATHOLOGICAL SOCIETY.

Regular Meeting Dec. 22, 1858, Dr. Peaslee, President.

(*Reported for the* N. Y. Journal of Medicine *by Geo. F. Shrady, M.D.*)

Sub-luxation of the knee-joint from ulceration of the ligaments.—Dr. Jas. R. Wood presented a specimen taken from a patient who had been an inmate of the Bellevue Hospital, since April last.

She was about thirty years of age, and entered the hospital with chronic disease of the knee-joint. She had suffered about a year from synovitis, and when examined after her admission into the hospital, it was discovered that she had tubercles, and shortly before her death it was also discovered that she had Bright's disease. She was treated for synovitis in the usual way, by counter-irritation, drains in the neighborhood of the joint, and position on the double inclined plane. About a month before she died, it was discovered that there was displacement at the knee-joint, that the left condyle had lost its position, and occupied the position of the right; in other words, sub-luxation of the joint had taken place, outwards and backwards.

The outside of the condyle, it will be seen, said he, is bare of the periosteum, and the bare bone had by attrition so diseased the ligament, that it had given way This seems to be the only way that the luxation could be accounted for. We know that occasionally there is subluxation from injury, as described by Mr. Cooper, where the ligament gives way and the patient falls at once, and is unable to get in position afterwards. He refers to a case, where a lady, in attempting to get into a coach, turned her leg, the ligament gave way, she fell immediately to the ground, and was unable to raise herself in the erect position.

This specimen belongs to an interesting case, inasmuch as we find from the ulcerative process that the ligament is destroyed, and luxation is produced. It is rare to see luxation of the knee-joint from any cause, especially from ulcerative disease of the bone, affecting secondarily, the ligament. We know in the hip-joint, it is comparatively rare. Professor Marsh, of Albany, who made a very thorough investigation of this subject, some time ago, and visited hundreds of museums, both public and private, stated that he had never seen a case of luxation from ulcerative absorption of the hip-joint. We know now, however, that it does occur; that he was mistaken, though the disease is very rare. There are some specimens in this museum, and others in private collections, that demonstrate this fact. I have two in my own museum. He brought this specimen because he thought it was a rare one, and was interesting to those gentlemen who do surgery.

Dr. Sayre stated that he had, within the last four years, in synovitis of the knee-joint, kept the limb in the straight position, and was perfectly satisfied of its utility. He asked if it was possible, in that position, that such a dislocation would have taken place. He thought that such a condition of things was materially facilitated by the ordinary semi-flexed position over the double inclined plane.

Dr. Wood said that a good surgeon always imitated nature, and that the semi-flexed position was the most easy and comfortable.

Dr. Sayre remarked that in the semi-flexed position, the tendons were apt to become contracted and give rise to a great deal of pain. In these cases, he thought it was better to divide them, and bring the limb out as nearly as possible in the straight position. He had seen gratifying results follow such treatment.

Dr. Wood had treated scores of cases on the double inclined plane, and had never seen any bad result following. The sub-luxation was altogether an accidental circumstance, and had nothing at all to do with the double inclined plane. He stated that the result coveted in these cases was anchylosis, and the limb was in the very best position for any such result, when over the doubled inclined plane. He flexed the limb at the angle of 30 degrees, and had so far found it to answer every purpose, both so far as progression and general comfort to the patient was concerned. Position in these cases was everything. This was strikingly exemplified in the rectangular position of the elbow joint. He stated that the leg flexed to the angle of 30 degrees was in a position that rendered the muscles passive; the same was the case with the position in anchylosis of elbow, and contraction of the muscles was not apt to take place.

Dr. Sayre observed that all the cases of anchylosis that he had seen, had been too angular. In regard to the position laid down in the books, he did not seem to agree with the authorities upon the subject. He made an exception in the case of the elbow.

Dr. Buck stated that he had known, in a case of luxation of knee from violence, that the lateral ligament, instead of rupturing, would tear out the surface of the condyle into which it was inserted. He said also, that, in luxation of the foot outwards with fracture of fibula, the

outward lateral ligament often, instead of being ruptured, tore off the extremity of the internal malleolus. He said also that the displacement that he had noticed, as resulting from disease of the knee-joint, was dislocation outwards by which the inner condyle of the femur was rendered very prominent, the leg at the same time being rotated outwards on its axis and abducted on the thigh. He observed that, uniformly, as the change in the relations of the knee-joint from white swelling.

REGULAR MEETING, MARCH 9, 1859, DR. DALTON, PRESIDENT.

Necrosed bone.—Dr. Jas. R. Wood presented a specimen of *necrosed bone* which was taken from a man who four months before suffered amputation of the thigh for compound fracture of the leg. The wound healed soon after. The amputation was performed below the junction of the middle and lower thirds of the thigh. Shortly after it had closed over, dead bone began to show itself, and it was found that the whole of the circumference of the lower portion of the femur was in a necrosed condition, which gradually extended, the separation of the periosteum being encouraged by the frequent introduction of probes, etc., between it and the bone. Very soon new bone began to be deposited from this periosteum, which has increased until the present, when about 4½ inches of the distal extremity of the bone was removed by a pair of duck-bill forceps, the new deposit is enormous, being about four times the natural size of the bone.

In connection with this specimen he stated that Dr. Markoe looked upon the cause of necrosis in that locality as owing to a want of nutrition of the bone, the supply of blood from the medullary artery having been cut off; and referred to a very clever paper by that gentleman (Dr. M.) which was published in a recent number of the *New York Journal of Medicine.*

The next case was a leg and portion of the thigh which he removed three weeks ago from a boy eight years of age. In September last he was kicked on the shin by one of his playmates; inflammation followed; and the family physician applied leeches, but with little benefit. Poultices were afterwards kept applied, but the little patient suffered so much from pain in the part that Prof. Parker was called at the end of a fortnight. He made an incision two or three inches in length and found dead bone to exist. Dr. Parker saw the patient only once and the physician continued his attendance until Dr. Wood was called to the case. On examining the limb he found that there was necrosis of the tibia from the tubercle to within half an inch of the internal malleolus. He commenced enucleating the bone from the periosteum and watched with interest the favorable progress of the case, until the patient was seized with severe pain in the joint, terminating with suppurative inflammation, rendering amputation imperative. Previous to the operation however the joint was opened, a large quantity of pus being discharged.

The specimen showed that the whole of the anterior and lateral portion of the tibia was necrosed, and that new bone had formed around

the sequestrum. Had it not been for the unfortunate complication at the lower end of the bone all the dead bone would have been removed and new bone would have occupied its place. A longitudinal section of the bone showed a cavity to exist both at its upper and lower end, which was filled with tuberculous matter and a cancellated sequestrum, as was proved by microscopical examination. He stated that the specimen proved that the deposit of new bony matter was greater in extent and amount than the dead material. In this particular it was analogous to many that he had reported. The wound after the amputation healed rapidly, and was closed up at the end of twenty days.

Dr. Markoe, in reference to the explanation of the formation of sequestrum, stated that he had examined over fifty femora in reference to the point at which the nutritious artery entered the bone. In about half the cases it entered at or below the middle of the femur.

In a certain number of cases the nutritious arteries are double, and in all cases they enter from below obliquely towards the upper extremity. He stated also that the artery previous to entering the bone traverses a greater or less extent of muscular tissue, as the case may be, and hence it was not impossible for the artery to branch from the femoral at least as low down as the middle third. Sequestra similar to the one presented by Dr. Wood, he stated were not common in the femur, radius and ulna—the nutriticus arteries in these cases, the direction being from below upwards, were liable to be cut or sawn in amputation, hence the formation of such sequestra at the end of the bone. In the tibia, fibula and humerus the nutritious artery enters from above downwards, and consequently is not implicated in amputations. He had never seen a sequestrum from the humerus.

Dr. Dalton—Is ligature of the femoral liable to be followed by necrosis?

Dr. Markoe answered in the negative. He stated further that the second specimen was a very interesting one. It showed that the bone was dead for two thirds of its extent, which is generally the case when the disease is the result of an injury. The disease at the lower end had extended through the cartilage of incrustation. This state of things occurs now and then in the knee-joint, but most frequently at the tibio-tarsal articulation. An amputation under such circumstances was imperative.

Dr. Wood presented a *third specimen* taken from a man sixty years of age, who entered Bellevue Hospital on the 17th of last September, with compound fracture of the tibia and fibula, the former bone being exposed to the extent of four inches. At the expiration of a fortnight this portion of the tibia was removed without any periosteum being attached to it. The patient went on doing very well, the wound healing nicely until the following November, when the parts became involved in a low grade of inflammation, in consequence of which the limb was amputated. On examination of the limb after removal a gratifying condition of things presented itself. Notwithstanding four inches of bone had been removed, comprising the whole circumference of the tibia, the space was occupied by a new bone, formed from the periosteum,

which was left after enucleation. The callus was tolerably firm, and would have in due time united the upper and lower fragments. He stated that had the periosteum surrounding the detached fragment been removed there would have been no deposit, but by leaving it this restorative process threw out new bony material and the patient would have a very good and useful leg, had not the unhealthy suppuration taken place. He further stated that had this process been continued, the new matter deposited would have been greater in quantity and extent, than the original piece of bone removed. He said that in his judgment the time would come when by careful and patient treatment of these cases very few legs would be amputated—at least surgeons would be induced to save a good many more than they now do. He recollected when he was a student that amputation was a great deal more common than at present. Every case of compound comminuted fracture of the ankle was amputated; in fact, many limbs were condemned at the very outset, any attempt at restoration being considered out of the question, and that was the practice up to a very few years ago. He stated that the proper way in these cases was to coax nature to do her part; the success of such an endeavor was strikingly exemplified in the treatment of these fractures in the New York Hospital; especially by Dr. Buck's bran-splint. It is fortunate for the patient and creditable to the physician that conservative surgery is in the fashion.

Dr. Clark said there are three views advanced in regard to the cause of the changes that are noticed. One is that the uriniferous tubes are closed at two different points by inflammatory action, that the sacs become filled with the urinary secretion which afterwards becomes changed in its character—gradual accumulation of this fluid distends the sac so formed to a greater or less extent, as the case may be. Another idea is that the capsule of the malpighian body is the seat of the disease, and becomes gradually dilated and dilated until it attains the size of these that are presented. The third conjecture was that the individual cells of the epithelial lining of the tubes became greatly enlarged and vascular, and that by their increase these cysts were formed. He stated that if gentlemen would examine the kidneys they would come to the same conclusion that he did a good many years ago, that neither of these explanations were applicable to these cases. He maintained that the cysts were a new production, that they were entirely outside the interlocular in the midst of the bloodvessels. Each cell is complete of itself and contains granular matter to a considerable extent, the smaller ones containing nuclei. Under the microscope they were seen varying in size from something less than the diameter of the uriniferous tubes to eight or ten times their diameter—increasing in size, they are capable, under some circumstances, of holding a pint of fluid. The kidney tissue, as these cysts enlarge themselves, is stretched between them, forming septa of healthy structures.

PART SECOND.

CRITICAL ANALYSIS.

ART. VIII.—*Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London.* Second Series, volume the twenty-third. London, 1858.

THE volume of the Royal Medico-Chirurgical Society of London for 1858, sustains the high character of this serial publication; and we cannot do our readers more ample justice than by giving a brief synopsis of its principal articles.

1. *An account of a case of arterio-venous aneurism of the temporal vessels, which was treated by ligature of both the artery and the vein;* by CHARLES H. MOORE, Surgeon to the Middlesex Hospital. The patient was a man aged 60, whose left temporal artery had been opened thirty-six years before, in Australia, for pain in the head. Bleeding returned several times, but was finally stopped by pressure. A small swelling in the site of the wound remained, which beat synchronously with the heart, but would cease when pressure was made behind the left ramus of the jaw. In time the temporal vessels enlarged to the size of the fist, and a peculiar sound was noticed in the swelling. An abscess finally formed in the diseased part, which opened and discharged for three weeks, when there was a severe hemorrhage, that had to be restrained by pressure. It recurred again severely at the end of a fortnight. He now came under the notice of Mr. Moore; the scalp was swollen and œdematous; there was an abscess behind the ear, and an ulcer in the temple; large and tortuous vessels could be felt beating around the tumor, which ceased to pulsate when pressure was made in the parotid space; two large veins appeared in the neck in the course of the external jugular, having an arterial pulsation, and vibratile thrill in the upper part. It was decided to ligate the temporal or external carotid artery. An incision was made behind the ramus of the jaw, and a ligature placed around a pulsating vessel which proved to be the temporal vein. The artery was then found and tied, when all pulsation in the tumor ceased. The patient rapidly recovered.

2. *Case of communication with the stomach through the abdominal parietes, produced by ulceration from external pressure, with observations on the cases of gastro-cutaneous fistulæ already recorded;* by CHARLES MURCHISON, M.D., Assist. Phys. to King's College Hospital.—Perforation of the stomach in this case occurred in a hysterical female, who kept up ulceration from a seton by the pressure of a penny, until the coats of that viscus were perforated. To this case Dr. Murchison adds 24 other cases of

gastro-cutaneous fistulæ, and from the aggregate draws many interesting conclusions. *Causes.*—Incised wounds, 3; gun-shot wounds, 2; a blow, followed by an abscess, 1; ulceration from pressure, 1; cancer, 6; perforating ulcer, 12. *Situation.*—Between left ribs, 4; remainder according to seat of disease or injury. *Size.*—Doubtful 7; less than an inch, 6; one inch, 7; one and a-half inches, 1; two inches, 1; four inches, 1; two cases it was at first one inch but increased to the size of a half or whole crown piece. *Duration of fistula and possibility of cure.*—Cancer, all fatal within three months; wounds, generally mortal, or speedily cured; if persistent may remain for years; six of the latter became closed, 2 being from wounds, 4 from simple ulcer; 4 closed spontaneously, 2 of which reopened; 2 by treatment. *General health of persons with gastro-cutaneous fistulæ;* principal abnormal symptoms, great thirst, increased appetite, obstinate constipation, deficient secretion of urine; amenorrhœa; vomiting very unusual, even if present before. *Mechanism of vomiting.*—1. A long inspiration followed by partial closure of the glottis. 2. Contraction of the pyloric end of the stomach, with relaxation of the cardia and œsophagus. 3. Persistent contraction of the diaphragm, with rigid contraction of the recti and oblique muscles.

3-4. *On the influence of liquor potassæ, and other caustic alkaline solutions, upon the therapeutic properties of henbane, belladonna, and stramonium;* by Alfred B. Garrod, M.D., Prof. Mat. Med. Therapeutics, and Clinical Medicine in Univ. College. Dr. Garrod has found by a series of careful experiments that a given quantity of liq. potas. will completely neutralize the action of hyosciamus, belladonna, and stramonium. The following formulæ exhibit the results of his experiments: tr. hyos., ʒij., liq. potas. ʒv. dilated the pupil; tr. hyos., ʒij., liq. potas. ʒx. dilated the pupil; tr. hyos. ʒi. liq. potas. ʒx. no dilatation in three instances. Extract hyosciamus, gr. v. to liq. potass. ʒxxv., no dilatation in two trials; gr. x. of the former to ʒxxx. of the latter gave moderate dilatation; gr. x. to ʒxl. no dilatation in seven cases. *Stramonium.*—Extr. stramonii gr. v., liq. potas. ʒxx., no action on five eyes. *Belladonna.*—Tr. belladonnæ ʒj. liq. potas. ʒx., some dilatation of pupil; tr. bellad. ʒj. liq. potas. ʒxv., no dilatation in five cases. *Atropine.*—Atropine, gr. ½, dilated pupil intensely; with ʒxxv. liq. potas., no action on pupil. These are but a few of the examples given to prove the destructive effects of caustic alkalies upon the therapeutic properties of henbane, belladonna and stramonium. The subject is one of practical interest, as these remedies are very commonly combined in practice.

5. *Contribution to the science of teratology;* by Henry R. Silvester, M.D. Dr. Silvester furnishes a minute dissection of the upper extremities of a child congenitally deformed, with plates illustrative.

6. *On some points in the pathology and morbid anatomy of glaucoma;* by J. W. Hulke, Assist. Surg. to King's College Hospital. Mr. Hulke states that he had frequent opportunities to dissect eyes affected with glaucoma directly after extirpation, and in his short paper he gives the results of his studies. The most interesting fact noticed is the change in the vessels of the retina, which are irregularly dilated, and studded

with small fusiform and globular enlargements, miniature aneurismal pouches. This is due to the impeded circulation through the central vein of the retina, owing to changes in the optic papillæ; the pressure thus becomes so great that the small vessels yield. The pain and the paralysis of the iris are owing to the great pressure upon the ciliary nerves, and are relieved when this pressure is removed.

7. *On the analysis and immediate principles of human excrements in the diseased state;* by W. MARCET, M.D., Assist. Phys. to the Westminster Hospital. From a synoptical table appended to Dr. M.'s paper, we give his method of analyzing human excrements. 1. Exhaust with alcohol and strain through a cloth. 2. The solution yields on cooling a deposit, and solution; (a) the deposit exhausted with alcohol yields an insoluble residue and solution; this residue dissolved with potash and treated with hydrochloric acid may be examined for lime, magnesia, etc.; the solution may deposit crystals of fatty acids, while the residue treated with ether yields *fatty acids*, and *soaps;* (b) the solution is mixed with milk of lime, which precipitated, treat with ether and it yields an ethereal solution, *Excretine, coloring matter;* a residue, which decomposed with hydrochloric acid yields a solution of chloride of calcium and solid substance of fatty acids; a solution which evaporated to dryness, decomposed with sulphuric acid, exhausted with a mixture of alcohol and ether, may be tested for organic acids.

8, 9. *On the membrana decidua which surrounds the ovum in cases of tubal gestation;* by ROBERT LEE, M.D., Physician to the British Lying-in-Hospital, etc. In this paper Dr. Lee introduces a number of cases of extra-uterine fœtation, which proved on examination after death that the ovum was surrounded by a decidua. The older writers describe a deciduous membrane in the uterus in these cases.

10. *On the action of galvanism upon the contractile structure of the gravid uterus, and its remedial powers in obstetric practice;* by F. W. MACKENZIE, M.D., Senior Physician to the Western General Dispensary. The influence of galvanism upon the uterus in producing contraction of such a character as to be serviceable in hemorrhage or labor, has long been a mooted question. To decide this point, Dr. Mackenzie instituted a series of experiments upon the exposed uterus of a pregnant bitch. The result is thus stated: "The most efficacious mode of employing galvanism, so as to obtain its most effective influence upon the gravid uterus, is to direct the current in a longitudinal direction through the organ from the upper portion of the spinal cord; that is to say, by applying the positive pole of the machine to the upper part of the spine, and the negative to the cervix uteri." He subsequently had opportunities to test this remedy in practice, and concludes: That electricity thus employed, exercises a remarkable influence in increasing the tonicity or contractility of the uterine fibre, and therefore it is a powerful and safe means of controlling uterine hemorrhage, whether accidental or unavoidable.

11. *A case of complete inversion of the uterus, of nearly twelve years' duration, successfully treated;* by W. TYLER SMITH, M.D., Lecturer on

Midwifery at St Mary's Hospital. The method of reduction in this case was, *first*, moulding the tumor daily with the hand, and upward pressure. *Second*, the use of the air-pessary in the vagina in the interval. The author strongly recommends the air-pessary as a tampon.

12. *On excision of the knee;* by GEORGE MURRAY HUMPHREY, Surgeon to Addenbrooke's Hospital. Mr. Humphrey gives the details of 13 cases in which he has performed this important operation. The results are as follows: Died 1; amputation and recovery 4; good results 8. In selecting cases for this operation Mr. H. prefers farmers to artisans, and an articulation not the subject of acute disease, or advanced disorganization. This paper merits the attentive consideration of surgeons.

13. *Contributions to the etiology of continued fever: or an investigation of various causes which influence the prevalence or mortality of its different forms;* by CHARLES MURCHISON, M.D., Assist. Phys. to King's College Hospital. This is one of the most elaborate papers in the volume, and we regret our inability to notice it further, at this time, than by its title.

14. *Case of hydatids of the tibia;* by WILLIAM COULSON, Senior Surgeon to St. Mary's Hospital. This affection is so rare that the *Transactions* of the Society contain but a single case. Mr. C.'s patient was a female, aged 25, who several years previously had received a kick on the upper part of the tibia; a swelling followed, which finally burst, giving exit to hydatids. It was treated by laying open the cavity and applying caustics freely.

15. *A case of fibrous polypus of the urinary bladder, with observations and a table of the recorded cases;* by JOHN BIRKETT, Surgeon to Guy's Hospital. The case which forms the basis of this paper occurred in a girl, aged 5; she suffered from dysuria, and on examination the tumor was found projecting from the meatus urinarius. She died soon after admission to the hospital. The autopsy revealed numerous large polypoid growths attached to the inner surface of the anterior wall, and filling the cavity. The table appended to the paper comprises 10 cases; of these 8 died; in 2 the fungus was removed; 1, a female, by incision of meatus and ligature; 1, by cystotomy and twisting.

16. *Researches on gout;* by ALFRED B. GARROD, M.D., Prof. Mat. Med., etc.

17. *Contributions to the pathology of the glandular structures of the stomach;* by WILSON FOX, M.D.

18. *On the influence of the cervical portions of the sympathetic nerve and spinal cord upon the eye and its appendages, illustrated by clinical cases, with observations;* by JOHN W. OGLE, M.D., Assist. Phys. to St. George's Hospital.

19. *An account of a case of calculus in the bladder removed by lithotrity, in which a communication existed between the bladder and intestines;* by CHARLES HAWKINS, Vice-President to the Society.

20. *On a case of dislocation of the humerus, upwards and inwards, with fracture of the coracoid process of the scapula; accompanied by a dis-*

section of the parts involved in the injury; by T. Holmes, M.A., Curator of St. George's Hospital Museum.

21. *On a case of premature puberty;* by Robert Bath Smart, M.R.C.S.

Art. IX.—*A Course of Lectures on Obstetrics*, by Wm. Tyler Smith, M.D. Edited and Annotated by Augustus K. Gardner, A.M., M.D. New York: Robert M. DeWitt. pp. 749. Illustrations, 212.

Those who are called on to answer that difficult question from the student and young practitioner, "What text-books do you recommend?" will be glad to learn that this edition of Tyler Smith has been brought within the reach of the class for whom it was designed. Obviously, it cannot be recommended as all-sufficient in itself. Obstetrics are unlike anatomy or the materia medica, in which one complete work may supply the wants of the class alluded to. Principles of treatment yet in litigation; facts but little known and awaiting the light yet to be reflected from physiology, pathology, chemistry, and therapeutics; the influence of routine, and religious views regarding the value of fœtal life; while lending a special charm to study of the subject, forbid that any one man in any country shall in a single volume do for obstetrics what Wilson has done for Anatomy, or Wood and Bache for the Materia Medica.

Dr. Gardner was convinced that if these lectures were "collected into a volume they would constitute the best body of midwifery extant."

The result of this conviction has been to present us with a "*body*" which Dr. Gardner has materially improved by the addition of about one hundred pages of interesting and instructive matter, also embodying the recent American contributions to obstetrics. The most valuable suggestion of novelty from this quarter is the plan proposed by Dr. Thomas, in funis presentations, with which the readers of the Journal are familiar; and it will be interesting to note the certain reproduction of his illustrations in the forthcoming obstetric works.

We are of those who are only too happy to see English books reproduced in this country when, as in this case, the additions are such as to justify the use of the annotator's name on the title page; and we trust that the time will soon have gone when an American physician shall parade his name as editor when his duties have been confined to proof-reading.

The time has not yet come when complete works on obstetrics or full courses of lectures can be considered as unnecessary; and we moreover think that the publication of a course of clinical lectures amply illustrated by cases after the plan of Bennett's Clinical Medicine, would be of great value.

Unfortunately, German literature is without the reach of the mass of our profession; while French is so generally read as to leave much less to be desired in that direction. The labors of Dr. Noeggerath and Dr. Jacobi in this Journal supply a great want to those unable to read the

current German literature of the day; but it seems strange that no young professional man in this city, desirous of associating his name with obstetrics, has employed his leisure in translating and annotating one of the many valuable obstetric works in that language. The work of Braun, we have reason to believe, however, will soon be brought within the reach of our students; and if the complete work be as well translated and annotated as were the chapters on puerperal convulsions, by Matthew Duncan, a great want will be supplied. But the German press teems with monographs of the greatest erudition and originality, the translation of which would involve but little labor to the linguist, or expense to the publisher, while the effort would favorably predispose the profession to one thus engaged in their behalf.

The teachings of Tyler Smith are eminently sound and practical, and such as can be safely recommended to the student; and it is gratifying to see that the influence of Robert Lee, the traditional rules of English operatic midwifery as enforced by Osborn, and Denman, and Collins, fail to stem the advance of sounder and more enlightened principles of obstetric surgery.

The discussion of the various points of interest to the reviewer contained in this volume, or the enumeration of the original views and illustrations of the author, would demand more space than can be afforded; a fact less to be regretted, as we can confidently recommend alike the book and the annotations to the study of the student and the library of the professional man. G. T. E.

ART. X.—*Practical Midwifery, comprising an account of* 13,478 *deliveries which occurred in the Dublin Lying-in Hospital.* By E. B. SINCLAIR, A.B., T.C.D., and GEORGE JOHNSTON, M.D. London, 1858.

Drei und vierzigster Jahresbericht der Gebäranstalt der königl. Sächsichen medic.-chirurg. Academie zu Dresden. In Monatsschrift für Geburtshülfe. XII. Dez. 1858.

Forty-third Annual Report of the Lying-in Hospital of the Royal Medico-chirurg. Academy at Dresden. By Dr. GREUSER.—In Monatsschrift für Geburtsh. XII. Dec. 1858.

Bericht über die Vorfälle in des geburtshülflichen und gynaekologischen Klinik und Poliklinik zu Jena, während der Jahre 1855, 1856, 1857. Von ED. MARTIN.—In Monatsschrift f. Geburtsh. XII. 3 Sept., 1858.

Report of the Obstetrical and Gynæcological Clinic of Jena, for 1855, 1856, 1857. By ED. MARTIN, M.D.—In Monatsschrift f. Geb. XII. 3 Sep., 1858.

Jahresbericht von der geburtshülflichen Klinik für Hebammen in Wien für das Jahr 1857. Von Dr. HABIT.—In Zeitschrift der Gesellschaft der Aerzte zu Wien. No. 21, 22, 23. 1858.

Annual Report of the Obstetric Clinic for Midwives in Vienna, for 1857. By Dr. HABIT.—In Zeitschrift d. Gesellsch. d. Aerzte zu Wien. No. 21, 22, 23. 1858.

Bericht über die Leistungen der unter der Leitung des Hofrath und Prof. Dr. v. Scanzoni stehender geburtshülflichen Klinik zu Wurtzburg, vom 1 *Nov.* 1853 *bis* 31 *Octob.*, 1856. Von Dr. J. B. SCHMIDT. —In Scanzoni's Beiträge z. Geburtsh. Bd. 3. 1858.

Report of the Obstetrical Clinic of Prof. Scanzoni at Wurzburg, from Nov. 1, 1853 *to Octob.* 31, 1856. By J. B. SCHMIDT, M.D.—Scanzoni's Beiträge z. Geburtsh. Vol. 3. 1858.

MR. SINCLAIR and Johnston's work on Practical Midwifery, consists of an account of 13,748 deliveries which occurred in the Dublin Lying-in Hospital during the seven years of Dr. Skelton's mastership, while the authors were assistant-physicians for the greater part of that period. The preface of the work contains an interesting account of the origin, progress and management of the hospital, and a description is also given of the general routine treatment which patients undergo from the time of their entrance to their discharge when convalescent. All labors are arranged under four principal heads: 1. Natural; 2. Difficult; 3. Preternatural; 4. Anomalous. The proportion of male to female births is 105 boys to every 100 girls. The total number of still-born children was 968, or about 1 in every 14 of those born. Of these, however, 487 were putrid at the time of birth. Of the 481 non-putrid children, 284 were males and 197 females, which shows, that male children are exposed to greater risks immediately before and during birth than females. The total number of maternal deaths from all causes was about 1 in 84; deducting, however, 17, which were admitted dying into the hospital, the mortality was 1 in 94. Of the 163 women dying from all causes, 40 died from other than puerperal ones, leaving thus 123 deaths out of 13,748 deliveries directly traceable to the labor, or about 1 in every 111 women delivered died from puerperal causes. In the months of December in each year the greatest mortality was found to prevail, the ratio being 1 in 46, and the lowest in May, the ratio being 1 in 184. Of those labors, which terminated within the first hour, 1 in 110 mothers died; while of those women who were delivered during the second and third hours, only 1 in 243 died. In the first six hours the proportion of maternal deaths is 1 in every 178; from seven to twelve hours, 1 in every 144; and from thirteen to twenty-four hours, 1 in every 124. In those cases, where labor was prolonged beyond twenty-four hours, but in which there was no interference, the mortality reaches as high as 1 in every 20¼.

The forceps deliveries amounted to 200, and the craniotomy cases to 130. The mortality in the forceps cases amounted to 11 mothers, or about 1 in 18; and 17 children, two of the latter being putrid at birth. Of the craniotomy cases 26 mothers died, or 1 in every 5. In using the forceps, traction was made during a pain only, in the direction of

the axis of the pelvis; and no motion whatever was permitted in a lateral direction. Craniotomy was never had recourse to when the forceps could be applied, even if the child's heart had never been heard during labor.

In prolapse of the funis considerably more than one-half of the children were lost. Accidental hemorrhage occurred in 81 labors, 4 mothers dying and 27 children being dead-born; instrumental interference was needed in 8 cases. Of placenta previa only 24 instances occurred in the entire number of deliveries. Of these, however, 6 mothers died. Of the 8 cases of complete placental presentation, only 3 recovered and only 3 children were born alive. The treatment adopted was according to the circumstances of each particular case. In all cases of post-partum hemorrhage a stream of cold water was thrown into the uterus, and with the best success. Induction of premature labor was performed in 4 cases, and each of the mothers recovered, but only 1 child was saved. In two cases, where it was induced on account of general dropsy, both mothers died. Chloroform was given in nearly all cases before operation, and during the seven years not a single accident took place that could be attributed to the use of chloroform. Of puerperal fever, which however never appeared in a severe epidemic form, 129 cases are reported or 1 in every 106 of the whole. Eighteen cases of trismus neonatorum are given in this report, and all died within ten days; it seemed to make its appearance in an epidemic form.

From Dr. Greuser's report we take the following data. In 1857, 433 pregnant women were received in the Dresden Lying-in Hospital. Of 412 deliveries, 373 were effected without surgical interference; 20 by the forceps, 1 by turning, 5 by extraction, 3 by perforation and cephalotripsis, 1 by accouchement forcé; while in nine cases artificial removal of the placenta was required. All the women recovered with the exception of 5; out of this number 2 died from peritonitis, 1 from pyæmia, 1 from uræmia and 1 from ruptura uteri. The number of new-born children was 414, among which were two pairs of twins, altogether 219 boys and 195 girls; 18 male and 6 female children were still-born, and all of them resuscitated; 13 boys and 9 girls died before delivery, 4 in far advanced maceration, 1 immature, 3 from pressure of the cord, 1 from internal hemorrhage in consequence of uterine rupture, 3 from compression of the brain during the passage of the head through a contracted brim, 3 from protracted labor, with consecutive craniotomy.

The presentations were as follows:

303 in 1st cranial,	4 in 1st breech,
89 in 2nd "	6 in 1st feet,
3 in 3rd "	2 in 2nd "
1 in 1st facial,	1 in 2nd shoulder.
1 in 2nd "	

In 4 cases the presentation is not noted.

The largest placenta was 8 and 9 inches in its diameter, the smallest 4, while 45 placentæ had fibrinous and 5 had calcareous deposits on their uterine surface.

The indications for the 20 forceps operations were: 9 for increasing

diminution of the fœtal pulsation in force and frequency ; 5 for prolapsus of the funis ; 1 for imminent suffocation of the mother, in consequence of a large struma lymphatica ; 1 for eclampsia ; 1 for internal hemorrhage from ruptura uteri ; 1 for metrorrhagia in the last stage of labor ; 3 for rhachitic contraction of the pelvis. Five out of these 20 children were born dead ; 5 were still-born and revived ; 2 mothers died, 1 from eclampsia, 1 from ruptura uteri.

From the statistical tables reported in Dr. Martin's report, we take the following facts :

1855.—Of 88 new-born children (1 pair of twins and 4 still-born), 38 were of the male, 50 of the female sex. Obstetrical operations were required 35 times, among which was 1 Cæsarian operation post mortem, giving a dead child ; 15 forceps operations ; 4 craniotomy-forceps operations.

1856.—Of 111 children born in the hospital, 4 were still-born, and 1 pair of twins. In the polyclinic, 1 case of premature quadruplets was observed. The examination of the afterbirth showed that three ovules had been fructified. There were altogether 98 cases of dystocia (out of 159 deliveries) and 37 operations, among which were 18 forceps operations.

1857.—Of 164 deliveries, 7 cases of twins occurred, giving a total of 171 children born, among which were 100 males and 71 females ; 16 of them died before or during confinement. In these 164 cases 46 operations were required. The transfusion of blood was successfully performed in a case of hemorrhage from placenta prævia.

PRESENTATIONS.

Naegele's I.	Cranial presentation,		224	Presentation of nates, II. . .	1
" II.	"	"	119	Foot presentations, I. . . .	2
" III.	"	"	2	" " II. . . .	3
" IV.	"	"	1	Knee presentation, . . .	1
Undecided	"	"	9	Transverse presentations, . .	2
Facial presentation, I. . .			1		
Presentation of nates, I. . .			3		370

After 52 forceps operations 2 mothers and 5 children died.

Dr. Habit's report contains the following : There remained from last year 80 pregnant women, 77 in childbed, 67 children ; 3,835 pregnant women received in the hospital, of which 3,795 were delivered, 33 dismissed undelivered, 87 remained at the end of the year. Of 3,872 women in childbed, 3,702 were dismissed healthy, 83 died, 87 remained. Of 3,727 children, 1,965 were males, and 1,762 females ; 119 were still-born (65 males, 54 females); discharged 3,568 children, 146 died, 80 remained ; 860 were so-called "gassengeburten (*i. e.*, women delivered immediately before entering the hospital); premature confinements, 249 ; twins, 51 ; 3,663 cranial presentations, 27 face presentations, 95 foot and nates presentations, 52 cross presentations. The operation of turning upon the head was performed in 21 cases, upon the feet in 32 ; inductions of premature labor, 2 ; convulsions, 13 ; hemorrhages, 35 ; ruptura uteri spontanea, 2 ; forceps operations, 43 ; perforation, 5 ; Cæsarian operation post mortem, 1 ; artificial removal of the afterbirth, 15 ; diseases of the puerperal state, 182; deaths, 83.

From Dr. J. B. Schmidt's report we give the following facts of 879 births; 869 were simple, and 10 twin-births; 839 children born alive, 50 dead:

I. Cranial presentation,	. .	606	Feet presentation,	. . .	6
II. " "	. .	231	Cross "	. . .	13
I. Facial "	. .	1	Uncertain "	. . .	11
II. " "	. .	3			—
I. Breech "	. .	12			889
II. " "	. .	6			

Atonic pains were observed in 42 cases, and treated with the colpeurynter, the douche, carbonic acid, or ergot of rye; spasmodic pains, 24; treatment: opium, tepid baths, chloroform, colpeurynter and douche; ruptures of the perineum, 18, three being to the sphincter ani; to prevent perineal ruptures, the labia were incised 85 times; pelvic deformities 15, 7 delivered naturally, 3 with the forceps, 2 by perforations and cephalotripsis, 1 by extraction on one foot, 2 by induction of premature confinement. Eclampsia observed in 1 case, chloroform used, mother died suddenly. Placenta prævia partialis, 3 cases, colpeurynter, opening of the membranes; plac. pr. central, 1 case, turning and extraction of the child; three mothers recovered—one died afterwards from puerperal fever—2 children born alive, 2 dead. Prolapsus of the funis, 11, 6 with cranial presentation. Induction of premature labor was performed 3 times. Case 1.—Hydræmia, catarrh of the kidneys, dyspnœa; application of sucking glasses to the breast nine times in three days, inefficient pains; douche twice a day for a week, insufficient pains; injections with secale cornutum, strong pains, as dilated to the size of a gulden; membranes detached with the sound, two hours afterwards birth of a dead child weighing 2½ pounds; mother recovered. Case 2.—Pelvic contraction, antero-posterior, diameter 3¼ to 3½, induction of premature labor by six applications of carbonic acid to the vaginal portion in five days; child born alive, mother recovered. Case 3.—Contracted pelvis, sucking glasses, douche, colpeurynter, all without exciting labor pains; tapping of the membranes; cross presentation, turning; child dead, mother recovered. Case 4.—Contracted pelvis, carbonic acid gas, injection of decoctum althææ, plugging of the vagina (Shœller), opening of the membranes (Meissner's method); child born dead, in foot presentation; mother recovered after being taken with endometritis. Forceps operation 47, all mothers recovered except one, who died from puerperal fever; 42 children born alive, 5 dead. Craniotomy 2, both from contracted pelvis; one mother died from endometritis and pyæmia.

From Dr. Gregor Schmidt's report it appears that during the six years from 1850 to 1856, 1,639 women were delivered in the lying-in hospital, and among this number 27 twin births were observed, making a total of 1,666 children, of which 1,536 were born alive, 130 still born; 113 of the children born alive died afterwards in the hospital.

I. Cranial presentations,	. .	1109	Breech presentations,	. .	25
II. " "	. .	443	Feet "	. .	23
I. Facial "	. .	6	Cross "	. .	24
II. " "	. .	4	Uncertain "	. .	26

Operations: 1. Inductions of premature labor, 6; mothers recovered, 6; children born alive, 3; dead, 3. 2. Forceps operations, 100; mothers recovered, 94; died, 6; children born alive, 80; dead, 20. 3. Extractions, 39; all mothers recovered; children born alive, 26; dead, 13. 4. Turning by one foot, 24; mothers recovered 22; died, 2; children born alive, 12; dead, 12. 5. Craniotomy, 5; mothers recovered, 4; died, 1; operation with Van Huevel's forceps-scie, 1; mother recovered. E. N.

BIBLIOGRAPHICAL NOTICES.

ART. XI.—*A Treatise on Fractures.* By J. F. MALGAIGNE, Chirurgeon de l'Hôpital Saint Louis, etc., with one hundred and six illustrations. Translated from the French, with notes and additions, by JOHN H. PACKARD, M.D. Philadelphia: J. B. Lippincott & Co., 1859, pp. 683.

EVERY surgeon will hail the appearance of this work in an English dress, as a most valuable acquisition to our surgical literature. Comprehensive in its design, minute in its details, accurate in statistics, it has taken precedence of all works hitherto published on the same subject, as an authority. We are proud of the achievement of Dr. Packard, the translator, and congratulate him upon the successful termination of his labors. We trust the favor with which this work is received by the profession will induce him to prepare at once for publication, the volume on dislocations.

Like all works issued by this publishing house the appearance of the volume is altogether unexceptionable. We need scarcely commend this work to the notice of the profession, so well and favorably is it already known.

ART. XII.—*Ventilation in American Dwellings, with a series of Diagrams, presenting examples in the different classes of habitations.* By DAVID BOSWELL REID, M.D., F.R.S.E., etc., etc. To which is added an introductory outline of the progress of improvement in ventilation, by ELISHA HARRIS, M.D. New York: Wiley & Halsted, 1858.

THE progress of sanitary science has developed one most important fact which is now beginning to be recognized, not only by philanthropists, but even by governments, viz.: that the material prosperity of a nation is not to be estimated so much by its statistics of manufacture, agriculture and commerce, as by the social condition of its people. Though national wealth have no constant relation to national health, as the former is often produced at the sacrifice of the latter, yet even modern and enlightened statesmen will seek in the vital statistics of the country, the condition of its resources for a productive industry, or its material prosperity.

In the homes of the people, therefore, we find the true basis of national strength and ultimate greatness; whatever is added to the phy-

sical well-being of the individual is so much added to the nation's resources. And hence the first duty of a wise government is to establish among the people correct ideas in the art of living. In no particular do the masses show greater ignorance of the physical laws upon which health and domestic happiness depends, than in the construction of their dwellings. Ventilation is scarcely, if ever, thought of by proprietor or architect, in the construction of either the farm-house or the palace, the school-house or church.

The work before us is designed to diffuse a general knowledge of the principles on which buildings, public and private, should be constructed, with reference to ventilation. The author, Dr. Reid, has given to the study of this subject, the greater part of an active life, and brings to its elucidation, a vast experience in the examination and construction of public buildings abroad. The introduction by Dr. Elisha Harris, of this city, gives an interesting history of the progress of architecture in reference to ventilation, from the earliest period to the present.

ART. XIII.—*A Treatise on the Venereal Disease.* By JOHN HUNTER, F.R.S., with copious additions, by DR. PHILIP RICORD, Surgeon of the Hôpital du Midi, Paris, etc. Translated and edited, with notes, by FREEMAN J. BUMSTEAD, M.D., lecturer on Venereal at the College of Physicians and Surgeons, N.Y. Second edition, revised, containing a résumé of Ricord's recent Lectures on Chancre. Philadelphia: Blanchard & Lea, 1859, pp. 552.

ON the appearance of the first edition of this work it received a favorable notice in our pages. The present edition is improved by the addition of the more recent views of Ricord, as published in a late work by M. Fournier, Interne of the Hôpital du Midi. As now issued the work presents to the profession a very complete treatise on venereal, embracing the opinions of Hunter and Ricord, with judicious notes and criticisms, by Home and Babington, and important additions by the American editor, Dr. Bumstead.

ART. XIV.—*A Practical Treatise on the Causes, Symptoms and Treatment of Spermatorrhœa.* By M. LALLEMAND, translated and edited by HENRY J. MCDOUGALL, member Royal College Surgery, England. Third American edition. To which is added, On Diseases of the Vesiculæ Seminales, and their associated organs; with special reference to the morbid secretions of the prostatic and urethral mucous membrane, by MORRIS WILSON, M.D. Philadelphia: Blanchard & Lea, 1858, pp. 380.

THE treatise of Lallemand on spermatorrhœa, of which we now have a third edition, is well known to the American surgeon, and his method of treating this malady is properly appreciated. That caustic applications to the prostatic portion of the urethra are often serviceable in

this affection there can be no doubt, but that they should be resorted to as indiscriminately as this author teaches, experience positively denies.

The monograph of Dr. Wilson of London, is a very judicious supplement to the preceding work, and will counteract its evil tendencies. The author investigates this affection in a scientific manner, and his treatment is correspondingly discriminating. This volume embraces our present knowledge of the disease known as spermatorrhœa.

ART. XV.—*A Treatise on Venereal Diseases.* By A. VIDAL (DE CASSIS), Surgeon of the Venereal Hospital of Paris, etc. With colored plates. Translated, with annotations, by GEORGE C. BLACKMAN, M.D., Professor of Surgery in the Medical College of Ohio, etc. Third edition. New York: Samuel S. & William Wood, 1859, pp. 499.

THE third edition of Vidal's treatise on venereal is revised from the last French edition issued by the author, and so far as relates to his own views must be final. It contains in addition to former editions, illustrations of the *accidents tardifs*, copied from the French. This work has met with general favor, both in Europe and in this country.

ART. XVI—*The Uræmic Convulsions of Pregnancy, Parturition and Childbed.* By Dr. CARL R. BRAUN, Professor of Midwifery, Vienna. Translated from the German, with notes; by J. MATHEWS DUNCAN, F.R.C.P.E., Lecturer on Midwifery, etc. New York: S. S. & W. Wood, 1858, pp. 182.

THIS work is a single chapter from the new text-book of Midwifery of Dr. Braun. It was first contributed by Dr. Duncan to the *Edinburgh Medical Journal*, and it has met with such a favorable reception that the translator has been induced to issue it as a separate volume. It contains in a condensed form the most complete and reliable history of this affection yet published. We trust that no general practitioner will fail to obtain, and carefully study this excellent monograph.

ART. XVII.—*A popular Manual of Female Diseases; their causes, symptoms, prevention and cure; including the diseases of pregnancy and childbirth.* By ROBERT H. BAKEWELL, M.D. London: Richard Kimpton, 1859, pp. 162.

THIS work is designed for popular reading, and in style and matter is well adapted to instruct females in regard to their peculiar infirmities. Practitioners often feel the need of a manual of this kind, judiciously prepared, which they can recommend to intelligent female patients. Such a work is this of Dr. Bakewell.

PART THIRD.

MEDICAL RETROSPECT.

DIPHTHERITE.

As this disease is now so wide-spread as to attract the almost universal attention of the profession, the following facts collected from various sources may prove of interest:

Its History.—Dr. Hillier,* of London, after referring to the various epidemics of sore-throat described by early writers, proceeds as follows: Dr. Bard, of New York, writing in 1771, is the first author who distinctly describes the formation of a false membrane similar to that which is found in croup. He describes cases in which there was angina alone, others in which angina was combined with laryngitis, and others in which there was laryngitis alone. He quite discards the notion of gangrene or ulceration, which all the previous writers had described, and considers the white appearances to depend on an exudation. These views were nearly lost sight of until M. Bretonneau, in the beginning of the present century (1826), wrote a treatise on diphtherite, in which he states that this throat affection is not attended with ulceration or gangrene, but is closely identified in every respect with croup. Since Bretonneau's time the disease has been described by many French writers, among whom are Guersent, Isambert, Rilliet, Barthez, Trousseau, Bouchut, and Empis. There was a very virulent epidemic in Paris in 1855. From the early part of 1855, to March, 1857, a very virulent epidemic of it prevailed in Boulogne, during which there died 366 persons, of whom many were English. There was less disposition in the false membrane to spread to the larynx than had been noticed by Bretonneau. The recoveries were attended with extreme debility, and occasionally by gastro-intestinal complications. M. Lemoine describes an epidemic at Nièvre, in which the air-passages usually escaped. M. Jobert has described another in the department of Haute Marne, where the nasal fossæ were usually invaded, and not often the larynx. M. Lespiau has given us an account of an epidemic which occurred among the soldiers at Avignon, in the autumn of 1853: here the false membrane usually spread to the air passages. Of 1,796 soldiers, 195 were attacked; and out of 22 children, 4. In the cases secondary to other diseases nearly all died; while in the primary cases only 6 per cent. died. Such, then, is the French account of this disease as existing in that country during the present century. I must now come down to the epidemic which has been described in this country during the past eighteen months. It first attracted general attention in England

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* *Medical Times and Gazette*, Jan. 29, 1859.

of late years in the autumn of 1857, a few cases having occurred for twelve months previously; during the winter it increased and prevailed in Kent, especially near Canterbury, Essex, Suffolk and Norfolk; subsequently it spread to Staffordshire and the midland counties. During June, July, and August, it spread northwards to Lincolnshire and Yorkshire; and since then has prevailed in very many parts of England.

In this country there has been a very general prevalence of this disease during the last year, and in certain localities it has been very fatal.

Its Character.—Dr. Hillier gives the views of writers: Bretonneau lays great stress on the great resemblance during life between the false membranes on the back of the throat and sloughs. If the patches are circumscribed, the œdematous swelling of the cellular tissue around makes them appear depressed, and one is tempted to believe that one has a foul ulcer with a considerable loss of substance. If, on the contrary, they are extended on large surfaces, they are partly detached, hang in flakes more or less putrified, and simulate the last degree of sphacelus. The disease to which he gave this new name had the following characters: 'The diphtheritic inflammation, he says, extends itself nearly as a liquid which is poured out. There are often some long narrow stripes of a deep red color, which stretch into the pharynx or descend into the trachea. A band of exudation matter is formed on the middle of each stripe.' He thinks that, except by post-mortem examination it is often impossible to distinguish between false membrane and sloughs; and even after death unless the examination be careful the two may be confounded. Its onset was not usually very alarming, but manifested only by a slight difficulty in swallowing, and sometimes by gentle pain. There was slight febrile disturbance, and prostration more or less marked. Soon the characteristic false membrane was seen. Before its appearance there was a circumscribed and punctiform redness observed in the pharynx, without any swelling. It was nearly always in one tonsil that these appearances commenced, and the whole gland was soon involved. A little later, on the surface of the tonsil, little opaque patches formed like coagulated mucus. According to Bretonneau, under this layer mucous may afresh accumulate at certain points, and simulate vesicles or small pustules. At first the false membrane is transparent, but it soon becomes opaque and more consistent. It varies from a very thin membrane to a quarter of an inch. Its color varies from yellowish white to greyish or even black. It extends in width. the redness of mucous membrane preceding its formation. On lifting the morbid product it is found united to the mucous membrane by small filaments, which Bretonneau thinks penetrate the mucous follicles. The seat of exudation is said to be between the epithelium and corium. The mucous membrane underneath was injected of a dull red color; on it were often seen black ecchymoses, oblong and irregular in outline; they were sometimes enough to make the membrane livid and like a cancerous excrescence. The lymphatic glands of the neck always became engorged. The breath was commonly fetid. There was usually salivation, the matter being yellow, fetid, and sanguinolent. Pain was not

proportionate to other symptoms; it was sometimes quite absent. The voice was dull and nasal. The false membrane had a strong tendency to spread to the larynx, and then, says Bretonneau, to pass into croup. In some cases the skin became coated with a simular exudation, especially the alæ nasi, backs of ears, the anus, vulva, and nipples, as also, blistered surfaces. The membranes from pharynx were often expectorated in considerable sized pieces. The pulse was usually small and weak, but little more frequent than natural; there were moderate thirst, and loss of appetite, sometimes diarrhœa, and less frequently vomiting. There were nearly always great prostration and lowness of spirits. The great danger of the disease arose from its spread to the air-passages. The disease sometimes proved fatal from prostration, but this mode of death was more rare than the former, according to Bretonneau and other French authors.

Some writers maintain that diphtherite is only a masked variety of scarlatina anginosa, while others believe the diseases are totally distinct. Others, again, think they have met with distinct cases of each disease, and have also seen cases of scarlatina complicated with diphtherite. Dr. Cormack thinks that it is a malignant herpetic eruption of the throat; and others say it is only a malignant form of quinsy. These differences of opinion as to the nature of the disease must, I believe, be in great measure ascribed to the fact that many of the observers have not met with cases of the genuine disease in a typical state, and have consequently formed erroneous conclusions founded on a partial experience, and from the presence of an epidemic of scarlatina anginosa, and cynanche maligna or scarlatinous angina at the same time.

Dr. Kingsford (*Lancet*, November 6, 1858) speaks of paralysis of the muscles of the neck, pharynx, and larynx, as a sequela to the severe form of diphtherite. He, however, appears to me to include in his description of the disease, cases of scarlatina anginosa. He also states that Dr. Gull informed him that he had met with a case in which the upper extremity was involved, and that he had himself just seen a lady recovering not only from loss of speech and deglutition, but also from partial blindness and paralysis of both arms, the result of this formidable complaint.

Dr. Semple, at the Medical Society of London, described some cases which he saw at Bagshot. He thinks they were very different from scarlatina. The onset was very insidious; and when advice was first sought, the pellicle had often reached the air-passages. Some died by asphyxia, but many more from exhaustion. It did not specially attack the puny and ill-fed, nor those living under unfavorable hygienic conditions.

Dr. Wade, of Birmingham, who has recently issued a pamphlet on the subject, considers that all the cases described by Fothergill and Huxham were the same as those described by Chomel, Bard, and more recently by Bretonneau; he does not consider that the circumstances that some of the cases were very similar to scarlet fever, and that the earlier cases were described as being attended with sloughing and ulceration, are enough to distinguish them.

Dr. Laycock, of Edinburgh, in a clinical lecture published May 29th, 1858, regards diphtherite as a disease produced by a fungous growth, *oïdium albicans*, the same that is found in thrush. He says: If the fungus multiply in a population at the same time that there is an epidemic of scarlatina or rubeola prevalent, that epidemic may be expected to take the diphtheritic form.

Regarding the nature of the false membrane affecting the throat in diphtheria, Dr. Harley * states that various and inappropriate names had been given to it, such as fibrinous, plastic, and fibro-plastic, all of which terms are very apt to mislead the mind as to its true nature. He had examined it in twelve cases, and found it to consist neither of fibrin nor fibro-plastic cells, but simply of the epithelium, mucus, and mucous cells proper to the part of the throat from which it came. When blood corpuscles were found in the exudation, their presence was due to some accidental abrasion of the mucous membrane. Pus-cells were also occasionally present, especially in those cases where ulcers had formed after the application of caustic. The false membrane, Dr. Harley believed, was composed of a hypersecretion of the ordinary mucus, and the presence of fungi upon it was due to some accidental circumstance. In the twelve cases he had examined, the *oïdium albicans* was absent in all except one; and even in that case the fungus did not grow upon the membrane until fifty-six hours after its removal from the patient. While speaking of the *leptothrix buccalis*, he related a very interesting case of diphtheria that occurred in University College Hospital. Several yellowish colored masses taken from the pharynx, œsophagus, and stomach, after death, when examined by the microscope, were thought by some experienced microscopic observers to contain numerous algæ. Dr. Harley pointed out to the Society, however, how he had been able to demonstrate that the supposed algæ were, in reality, crystals of fatty acids. But he did not mean to deny that algæ were sometimes found on the diphtheritic membrane; for, as they constantly occur upon the tongue and between the teeth of the most cleanly individuals, it is reasonable to suppose that they may occasionally attach themselves to the false membrane. What Dr. Harley wished to be understood to mean was, that neither fungi nor algæ were essentially components of the exudation, far less could they be regarded as constituting the disease. Diphtheria was, in his opinion, as much a blood disease as either small-pox or typhus, and the exudation on the throat was merely one of its characters.

Its Treatment.—Bouchut† teaches that, whether sporadic or epidemic its treatment is the same. The indication is the mechanical or chemical removal of the false membranes, and the prevention of their re-formation by the aid of contra-stimulant and anti-plastic remedies. The first of these is best fulfilled by the exhibition of emetics every or every other day. The membranes may also be destroyed by the hydrochloric acid, so much approved of by MM. Bretonneau and Trousseau, by nitric acid, nitrate of silver, and the actual cautery. Although these means are, no doubt,

* *British Medical Journal*, Jan. 29, 1859.

† *Med. Times and Gaz. from Gaz. des Hôp.*

often of service, M. Bouchut does not resort to them; but if he did, he would give the preference to the hydrochloric acid, rejecting the actual cautery as a barbarism. The means he employs is glycerine, which he finds to be a very efficient solvent of false membranes, when not too hard, and especially when they are muco-fibrinous, rather than fibrinous. There are great differences among these false membranes to be noted. Some are but slightly resisting, whitish, pultaceous, and formed of a soft exudation filled with muco-pus and granular bodies, in the midst of numerous epithelial cells, and almost destitute of fibrin; others, which are more resisting, consist of a greyish albumino-fibrinous exudation, contain a little more fibrin than the former, and are easily torn. Others are entirely fibrinous, whitish, and tough, exhibiting under the microscope filiments of well-marked fibrin, amidst which a small quantity of epithelium and granular bodies are observed. Of these three varieties of false membranes, the first two readily dissolve in glycerine, while the last does so incompletely. These latter also become softer and less bulky, but they do not entirely disappear under the action of glycerine.

For the purpose of preventing the reproduction of the false membranes, various alteratives and specifics have been employed. Mercury, M. Bouchut believes, risks doing as much harm as good; and he thinks better of divided doses of antimony, which, with proper precautions, may be given to children. Baron strongly recommends carbonate of soda or the Vichy waters, both as a preventive and a solvent agent, but from this M. Bouchut anticipates little. Chlorate of potassa, highly useful in ulcerative and gangrenous angina, giving rise to purulent or pultaceous products, and in stomatitis, has proved of no efficacy whatever in his hands in numerous cases of diphtherite and croup.

M. Pichenot states that during an epidemic at Censerey, Department of Coté-d'Or, the employment of emetics prior to the appearance of the membranes, the removal of these by alum, and then the repeated application of nitrate of silver, this treatment being combined with the use of tonics and strong broths, constituted an efficacious plan of management. Of 125 children, presenting all varieties of the disease, 77 recovered and 48 died.

M. Loisseau, of Montmartre, declares that during fifteen years that he has been in the habit of employing alum and tannin through the medium of laryngo-tracheal catheterism he has not lost a case.

M. Ollivier, of Ingrandes, states that during an epidemic of scarlatina with ulceration and couenneuse angine, the best results attended cauterizing the parts with his pure acid nitrate of mercury and the external employment of leeches.

Dr. Heslop, * in an article on the disease as it has lately appeared in England, strongly recommends the tincture of iron, which he regards almost as a specific. Dr. Camps, in a paper lately read before the Medical Society of London, considers that the general treatment should comprise the administration of the chlorate of potassa with chlorine, or a combination of cinchona bark or its alkaloid with the mineral acids. He

* *Pacific Med. and Surg. Jour.*, September, 1858.

adds: In severe cases calomel should be given in repeated doses until ptyalism is produced, and emetics, in the earlier stages, have been administered with good effect. The powers of the patient should be supported by wine, stout, beef tea, and other invigorating means.

Dr. Hillier * says: It has been hastily concluded that mercurials are contra-indicated in the present epidemic. When the disease runs a rather slow course, and the air-passages are attacked by the extension of a tenacious false membrane from the pharynx, I should be disposed to employ calomel in small frequently-repeated doses, or mercurial inunction, not omitting stimulants, and even tonics, if the symptoms appeared to require them. We must be quite sure we are not dealing with a case of scarlatinal angina before we resort to mercury. The use of emetics may also be allowed in some cases. The tonics most to be recommended are bark and chlorate of potash, or hydrochloric acid. Should tracheotomy be ever employed? If dyspnœa is a marked symptom, and the signs of blood poisoning previously to the air-passages being involved were not very marked, I should advise its employment, though not with any great confidence of its doing good.

Dr. Laycock † says: I may observe, that antiseptics and parasiticides appear to be the most efficient remedies in diphtheria. I can speak very favorably of the value of the tincture of the sesquichloride of iron (an antiseptic) and hydrochlorate of potassa. The latter, taken alone, will sweep away the pellicle in a few hours. Hydrochloric acid is also useful. Borax, which is so efficient in muguet, would probably be serviceable in diphtheria. And, I may say, that I have found a concentrated solution of borax as useful a local application in favus as any that I have tried. It is also serviceable in certain forms of lepra, applied externally, and, I believe, from its action as a destructive parasiticide. There are other remedies of this class, as the linimentum æruginis, the chloride of zinc, chloride of lime, etc. Early blood-medication is far the best treatment, inasmuch as local applications, like the nitrate of silver, cannot have any effect on the air-passages, where the greatest mischief is done. Calomel and blisters seem wholly contra-indicated; indeed, the latter must be considered far more likely to be hurtful than beneficial. Wine, in moderation, is likely to be useful, and makes an excellent gargle diluted one-half.

Mr. Stiles ‡ says: I have prescribed twenty minims of the tr. ferri mur., with the same quantity of tincture of columba, in water, to be taken three times a day, and the frequent use of a gargle containing a drachm and a half of Beaufoy's solution to eight ounces of water. And I have also recommended that a portion of the gargle may be allowed to pass down the throat, as I quite agree with Mr. Davey, that the putrid fluid which is swallowed is one of the chief sources of danger. I apply Beaufoy's concentrated solution by means of a sponge probang, six or eight inches in length, which affords a fair opportunity of sufficiently mopping the pharynx and parts over the base of the tongue and epiglottis, to prevent the extension of the exudation to the larynx.

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* *Med. Times and Gaz.*, Feb. 12, 1859. † *London Lancet.*

‡ *British Medical Journal*, January 8, 1859.

Mr. Alford * says: Having had several cases of diphtheria, I tried a gargle of chlorinated soda, of the strength of from half a drachm to a drachm in an ounce of water, to be used every ten or fifteen minutes, so as to wash away, and *keep washed* away, the morbid growth, and, by the constant application of the chlorine contained in the gargle, destroy the poisonous character of the disease. When this plan is persevered in, the white fungi and jelly-like mass are washed away; and the throat is kept free by constant gargling. I believe the chlorine itself not only counteracts the poisonous nature of the morbid secretion, and destroys its deleterious character, but also has a beneficial effect on the system at large; and again, by destroying the virus, prevents its spreading to other members of the family.

Mr. Hodson * used chlorine by inhalation in a bad case with good results: I then proposed trying the effects of inhalation of the vapor of boiling water, mixed with a portion of solution of chlorinated lime. A very serviceable vapor-bath was thus extemporized. An earthen milk-pan was placed on the bed close to the child; above this a large open umbrella; shawls and a piece of drugget were thrown over, hanging down to the bed so as to inclose the child and milk-pan completely; the latter was then half filled with boiling water; and, lastly, a few spoonsful of the chlorinated solution were added. After a few minutes the exudation became looser, and at the end of ten minutes, when the coverings were removed, the breathing was much freer. I directed this vapor-bath to be repeated every three hours, and occasionally a large sponge, dipped in boiling water, with a little of the solution sprinkled on it, held beneath the mouth and nose. For two days this plan was steadily pursued, and excepting for a few hours, the improvement was uniformly progressive.

Dr. Perry speaks favorably of turpentine as a remedy in diphtheria: I rub up ʒij. of the spr. terebinth. with the yelk of an egg, and add enough syrup to make a ʒxij. mixture. One tea spoonful in milk every two hours. Then dissolve ʒj. of the ammon. carb. in ʒxij. of water, and give one tea spoonful every two hours also in milk. Besides this the child takes port-wine, porter, and beef-tea, or wine with the yelk of egg *ad lib.* I have not found in any of my cases strangury caused by the turpentine. The patient dislikes it of course, and it requires a determined and attentive nurse; but I have found the plan very successful, and I speak of those cases where decided croupy breathing and fits of suffocation have made their appearance.

Dr. Blake,† of California, who has had much experience in this affection, thus gives his treatment:

The medicines I generally have recourse to are the chlorate of potash combined with the spirit mindereri when there are feverish symptoms, and with quinine, or tincture of bark when the pulse becomes too soft. How the chlorate acts in this disease I cannot tell. It might be merely by its aid as an antiseptic, neutralizing the secretions that have found their way into the stomach from the throat, or it might exert an

* *British Medical Journal*, January 8, 1859.

† *Pacific Med. and Surg. Jour.*, September, 1858.

analogous action on the poison in the blood; or it possibly might be inert, the patient getting well merely *post*, and not *propter hoc;* however, I think at least as an antiseptic we are justified in giving it. The dose should be from five grains to a scruple every two or three hours, or less frequently when the symptoms are not severe. I am also in the habit of prescribing considerable quantities of charcoal with a view of neutralizing the fœtid secretions that must find their way into the stomach.

CORRESPONDENCE.

Death and almost entire absorption of a fœtus of six months' development.—By E. J. FOUNTAIN, M.D., Davenport, Iowa.—The following history will furnish a hint for a diagnosis in any similar case which may hereafter occur, and throw some light upon those rare and obscure cases of placental absorption, concerning which there has been so much difference of opinion. To me the nature of this case until its final termination was a mystery. The patient, whose recent condition has furnished the following report, is a lady of intelligence and refinement, and is the mother of several healthy children. She became pregnant, as she supposed, in the month of June. The symptoms were well marked, and the same as she had formerly experienced under like circumstances. She began to feel motion at about the usual time, and the enlargement of her person continued at the same rate as formerly, until about the first of December. At this period she felt slightly indisposed for a number of days, but not sick enough to take her bed or ask for medical aid. From this time her enlargement ceased advancing, but she continued to feel something like motion as before. Her health was excellent; better, she thought, than usual. During the winter she fancied she was growing smaller; and this opinion, at first a suspicion only, became confirmed before spring by positive evidence of diminished size of the abdomen. This diminution continued going on, but still she thought she felt motion as formerly, but always light. I was first consulted in reference to the case in the month of April, after the time when she expected to have been confined. Her appearance did not in the least indicate that she was pregnant, but on examination I found a very slight but tolerably well-defined enlargement of the hypogastric region. An examination per vagina revealed an increased size of the neck of the uterus, and its weight indicated some enlargement of the body itself. From a careful examination I concluded the uterus could not be quite as large as the head of a child of ordinary size at birth. The lady felt a great anxiety to know the real character of her situation, but I had to confess that I could not determine in my own mind what it might be. She was certain that she felt motion every day, yet here was the uterus too small to contain a living fœtus of nine or even six months, and it was still constantly diminishing in size! Gestation had advanced regularly up to the sixth month, and then appeared gradually to recede, until at the time when she should have been delivered her figure differed but little from its natural appearance, and what

remained of the enlargement was constantly diminishing. In the meantime, there had been no discharge from the uterus of any kind, and she had suffered none but a slight temporary interruption to her usual good health. The case was a complete puzzle to me; and although various conjectures were made to explain her anomalous situation, they were all quite unsatisfactory to myself. I acknowledged to her that the case appeared a mystery that I could not understand; but as her general health was good, I thought there was no occasion for any active interference. Whatever might be the contents of the uterus, it was evident they were gradually being absorbed without injury to her constitution; and I concluded it would be time enough to interfere when any change in her condition would seem to require it. It is hardly necessary to say that I referred the motion which she supposed she felt entirely to her imagination, or to some sensation which she had mistaken for the movements of a living child. A few days after this she began to feel some pain in the back, and her appetite and general health was somewhat impaired. She became nervously anxious about her situation, and was much disturbed by unpleasant dreams at night. In the absence of any knowledge of the nature of her condition, her imagination naturally furnished all manner of fancies which were calculated to excite her fears and depress her spirits. She still thought she felt motion, but never at any time had any symptom of labor pains. This was her situation on the 11th of May, eleven months from the commencement of gestation, when I determined to examine the uterus by the aid of the speculum, to explore its contents as far as possible, and endeavor to excite uterine action for the expulsion of whatever it might contain. I first passed into the neck a small silver catheter. This entered about half or three quarters of an inch, when its passage was resisted by some firm but slightly elastic obstacle. I then introduced a small and pointed injecting tube, perforated with a number of small openings at its extremity, and injected a small quantity of aqueous solution of iodine and iodide of potassium. The operation was attended with but very little pain, and I left her with directions to remain quiet and wait for the result. In about an hour labor pains commenced and continued regularly until I was called, which was about four hours after the operation. This method of exciting labor pains was entirely experimental on my part, and resulted in the effect desired with far more promptness than I anticipated. On examination, I found a membranous bag filled with a tolerably firm substance presenting in the upper portion of the vagina. As the pains were light, I administered ergot; stronger pains followed in about fifteen minutes, and soon my hand received the expelled mass in unbroken form and without a drop of blood. It was the remains of a fœtus enveloped in its membranes unbroken, with the placenta attached. The placenta was very hard, evidently much compressed and reduced in substance, and partly rolled upon itself. The contents of the sac appeared almost solid, and of a dark color. The whole mass was so small that it scarcely filled the hollow of one hand. A very slight flow of blood followed after a little while, and afterpains continued during the night. The patient's convalescence was quite rapid. No

lacteal secretion was established, nor had her breasts enlarged in the least. On opening the sac at my office on the following day, I found it contained the greatly compressed and emaciated form of a fœtus. The flesh had been almost entirely absorbed, leaving little more than a skeleton, partially covered with a thin remnant of muscular tissue, and surrounded with a small quantity of an opaque yellowish liquid, of purulent consistence, but quite free from odor. The bones of the head were crowded over and under each other; the body and limbs were doubled up, and the whole compressed, with the placenta, into a small compact ball. Upon unfolding it, the skeleton was found to be entire in substance, and measured ten inches in length, without unlocking the bones of the head.

From the history of this case it is evident that the fœtus had been regularly developed, and reached its normal size and condition until at or near the sixth month of gestation; and that at this period the death of the fœtus had occurred from some unknown cause, and absorption of the contents of the uterus began and continued from this time up to the period of delivery. It is an interesting fact that this dead child should have been carried so long, about five months, without exciting uterine action. How much longer it would have remained had there been no interference, it is of course impossible to know; but it is certain that there had been no symptoms of any disposition on the part of the uterus to expel the fœtus. Still more remarkable is the fact that so great an amount of absorption had taken place from the uterine cavity. The size of the patient, and the appearance and condition of the bones of the child, with other particulars stated, furnish evidence that the uterus had contained a living child of usual proportions at six months, and that all but the skeleton of this child, together with the placenta, membranes, etc., had been absorbed to such an extent that the whole mass which was finally expelled was not larger in bulk than a good sized orange. With this case before us, we may readily believe that the entire absorption of a placenta is a possibility, and that it is more than probable that such an occurrence now and then does take place is established by undoubted evidence of a few cases of this kind, of which fact I am personally assured by Dr. C. R. Gilman, Professor of Obstetrics in the College of Physicians and Surgeons of New York.

Uræmic convulsions following scarlatina—Recovery.—By RALPH N. ISHAM, M.D., Chicago, Ill.—Hans Pritz, Norway, aged 8 years, was attacked with scarlatina simplex, December 12th, 1858, at the same time suffering from whooping cough. His recovery from the former after the fourteenth day seemed to be tardy. Symptoms of hectic set in, and he became very weak; upon the least exertion, large drops of perspiration would break out upon the forehead and elsewhere. Changes in the urine were now noticed, following desquamation, being at first of a dark-brown color, turbid and containing blood; it changed to a cloudy amber, containing albumen and some epithelium, with crystals of uric acid, under the microscope. Urine scanty and frequently passed; no tenderness over lumbar regions; some œdema of eyedids, upper lip

and lower extremities, appetite good, bowels regular, still harassed with cough.

Thursday, January 20th, 1859.—Has steadily improved; has been sitting up nearly all day; complains of some pain in the chest and back; very little œdema; urine scanty and still albuminous, little cough.

At 5½ this evening his mother placed him in bed, and shortly afterwards noticed an unusual change in his look. He made no replies to questions; the eyes were prominent and fixed in a vacant upward stare, with pupils dilated and head partially thrown back, and rigidity of limbs. This condition lasted about half an hour, and I arrived at the house whilst the patient was in the first convulsion which succeeded this state. He was insensible; face and neck swollen; of a dark color; eyelids wide open, with rapid twitchings; eyebrows prominent and turned upwards; pupils largely dilated; conjunctiva injected; frothy saliva issuing from the mouth, the latter open, distorted to the right side and convulsed, as also all the muscles of the face; head drawn back and body rigid; jerking convulsions of the extremities; hands alternately open and clenched; right side of body mostly affected; respiration short, rapid, thoracic, and accompanied with a hissing noise and occasional moan or cry. Urine passed involuntarily; no vomiting; skin covered with perspiration; temperature reduced; pulse small and too frequent to be counted.

This first convulsion lasted about twenty minutes, leaving the patient in a state of rigid coma, or as the mother describes it, similar to the appearance of the patient immediately before the attack. The second convulsion succeeded the first in a very few minutes, but the intervals became much longer after each convulsion. Whole number of convulsions, 8. A glass rod, dipped in hydrochloric acid and held to the breath, gave evidences of the presence of ammonia in the expired air.

Treatment.—Wine of colchicum was given in ten drop doses to the extent of two drachms during the night; irritation over the region of kidneys; blisters to nape of neck and sinapisms.

Friday morning, 21st.—Boy is weak; temperature diminished; covered with perspiration; has passed quantities of urine, but involuntarily; is conscious, but unwilling to converse; is occasionally a little delirious; has slept none; pulse small, and 110.

Saturday, 22d.—Has good appetite; an unnatural brilliancy of the eye and wildness of expression; ordered a renewal of irritation to nape of neck; resort again to colchicum.

Saturday evening. Boy has slept a couple of hours, the first since the convulsions; says he "feels better;" urine has been freely passed, but upon cloths, so that I had no opportunity to examine it. 25th.—Patient is unusually well to-day; his habits are all regular. His mother says his appetite is ravenous; has a small red sore over right ischium; is troubled with several ugly boils. Urine examined (first since convulsions) is clear, of amber color, non-albuminous, sp. gr. 1.010.

Tuesday, Feb. 1st.—Patient has again manifested some symptoms indicating a return of the convulsions; a dilatation of pupils, fixed eyes,

tremor, and convulsion of fingers; the urine is also albuminous and contains blood; colchicum renewed. The patient is also covered with boils—eleven I counted upon the chest; some of them being opened gave exit to a very dark, bloody and offensive pus. From this date, with exception of some irritation of the bowels, he steadily convalesced, and to-day, February 12th, is well.

The above case affords some ground for the supposition that colchicum may prove a valuable remedy in cases where urea in the circulation produces convulsions and coma. This remedy alone, above all others, possesses the property of increasing the quantity of urea in the urine in a marked manner, and I regret that in this case I was unable to show its exact effect upon the urinary secretions, whilst the patient was under its influence. Although long since satisfied of the propriety of its use, and being determined to resort to it upon the first opportunity which presented; I was unaware that it had been administered in such cases, until I saw an article a few days since written by Dr. Maclagan of Edinburgh, who has used it in cases of dropsy succeeding scarlatina, when the urine had been much suppressed with comatose symptoms with the happiest results. He says: "I believe that in all cases where albumen and urea appear to be vicarious, and when coma supervenes, evidently from the latter principle in the blood, that colchicum will prove to others of as great service as it already has done in the small experience I have had of it."

This case is interesting, also, from the fact that it comprises some observations of Frerich's, that in uræmic convulsions, carb. of ammonia is present in the expired air, being converted from urea by some ferment yet unknown. The sudden appearance of boils upon the patient is an interesting phenomenon, undoubtedly connected with the blood poison.

Inhalation of oxygen as a remedy in obstructed respiration.—By A. H. SMITH, M.D.—Permit me, through the medium of the *Journal of Medicine*, to make known to the profession the result of a series of experiments which I have lately made with regard to the inhalation of oxygen gas in cases of obstructed respiration. The idea of compensating for the deficiency of air admitted to the lungs under such circumstances, by increasing the proportion of oxygen contained in the limited quantity which finds access to them, first occurred to me during the winter of 1856-7. Circumstances, however, prevented my testing its value by experiment until the early part of November of the past year. Having, then, leisure for the first time since my arrival in Europe, I determined to make some experiments with regard to this point, my attention having been forcibly called to it anew by a case of croup which occurred on board the steamer in which I came from New York.

I adopted the following as the most convenient means which suggested itself to my mind for imitating in an animal the condition which is observed in the human subject in cases of croup, spasmodic asthma, foreign bodies in the trachea, etc. A glass tube three-eighths in diameter and eight inches long, was draw out to a somewhat smaller diame-

ter at one end, and furnished with a groove around it near the extremity for the purpose of retaining the ligature hereafter to be mentioned. The other end was drawn out to a diameter of rather less than half a line. Tracheotomy was now performed on a rabbit, and the large end of the tube introduced into the trachea from above downwards, and secured by passing a ligature around the trachea immediately below the wound, and at a point corresponding to the groove on the tube. By this arrangement no air could pass into the lungs except through the tube, that is to say, through an orifice less than half a line in diameter. The free end of the tube was introduced in flasks containing oxygen mixed in various proportions with common air.

My first experiments, though encouraging on the whole, gave no definite results, owing to my not having learned to apportion properly the amount of oxygen. I observed, however, that the congestion of the ears, which immediately took place on tightening the ligature, disappeared almost instantly when the tube was introduced into the gas.

In the last experiment the tube was drawn to a diameter of about one-third of a line, and instead of proceeding as before, I merely brought the end of the tube into a stream of pure gas, thus avoiding the intermixture of carbonic acid with the oxygen. The first few inspirations were of a convulsive character, but after the lapse of one or two minutes the respiration became perfectly regular and quite easy, falling, however, from eighty, the number before the ligature was applied to the treachea, to thirty-two, at which figure it remained with slight variations during the whole of the experiment, the animal appearing to adapt the respiratory efforts to the amount of oxygen received into the lungs. After twenty minutes the supply of oxygen was exhausted, and although up to that time the animal had appeared perfectly easy, still after the supply ceased and before the ligature could be cut and the tube removed, respiration had ceased. By means of artificial inflation of the lungs, however, it was restored, and in the course of half an hour the animal appeared entirely well with the exception of the presence of some blood in the trachea, owing to hemorrhage from the wound.

The same tube was then secured in the same manner in the trachea of another rabbit, and the oxygen withheld. In two minutes after the tightening of the ligature respiration had ceased, and although by the means used in the former case it was again restored, still it was evident that even in this short time the system had suffered severely, and it was several hours before the animal recovered that degree of vigor which the other possessed within half an hour after the termination of the experiment.

It is true that the experiments to be entirely satisfactory should have been continued for a longer period, but still the results are sufficiently striking to lead me to hope that the idea may be developed into an important improvement in the treatment of cases of dyspnœa. Situated as I am here it will be impossible for me to pursue the matter further at present, and I send these imperfect results merely with the hope that some one in America who has leisure and opportunity will repeat, and add to my experiments.

That the inhalation of oxygen is a means to be resorted to with caution there can be no doubt. Still in the human subject I think it would not be difficult to apportion the amount to the necessity of the case. Beside the sensations of the patient (which it might not always be easy to ascertain), the pulse would afford a guide, and the mere regulation of the supply would be a very simple matter. Inflammation would not be feared so long as the whole amount of oxygen inhaled was not permitted to exceed that in normal respiration.

Particularly in croup, advantage from the use of this means might be expected. When applied early and so managed as to keep pace with the progress of the disease, I should hope that the violent respiratory efforts, which so surely result in œdema of the lungs, might be avoided, so that we would have to contend only with the local inflammation in the trachea and larger bronchial tubes. So long as the air passages were capable of carrying but one-fifth of the usual volume at each respiration, the normal amount of the aërating principle might still be afforded to the lungs. But, under ordinary circumstances long before the calibre of the tubes had become reduced in this proportion, death would have taken place. Time would thus be gained for the appliance of other remedies, or the inflammatory process might reach, and pass, its point of greatest intensity while the powers of life were yet sufficiently vigorous to effect the expulsion of the membrane.

A case of chronic poisoning with chloroform which occurred a few days since, under my observation in a patient of Professor Langenbeck of this city, and in which the autopsy revealed an almost tarry condition of the blood, suggests the inquiry whether the inhalation of oxygen might not be beneficial in such cases. In this case death took place forty-eight hours after the inhalation of the chloroform, so that abundance of time was allowed.

BERLIN (Prussia), January 25th, 1859.

EDITORIAL.

Re-interment of the remains of John Hunter.—The coffin of John Hunter was recently discovered in the disinterment of bodies from St. Martin-in-the-Fields, and buried in Westminster Abbey. The *Medical Times and Gazette* gives the following interesting sketch of the ceremonies on that occasion :

"As public notice had been given that the re-interment would take place in the Abbey on Monday after the afternoon service, and that an appropriate anthem would be given, an unusually large congregation had assembled, and great numbers of medical men attended in addition to those who had obtained tickets at the College. There was no funeral service, but the words of the anthem were peculiarly appropriate : 'When the ear heard him, then it blessed him ; when the eye saw him it gave witness to him ; he delivered the poor that crieth, the fatherless, and him that hath none to help him. . . . His body is buried in peace ; his name liveth evermore.' While the service was proceeding, the Council of the College and many gentlemen invited to join in the ceremony, assembled in the Jerusalem Chamber, the room in which Henry the Fourth died, after having been brought there from the Confessor's Shrine in the Abbey in a fit of apoplexy. There were those present who recalled the words of the dying king, as embalmed by Shakspeare in his historical play, and of Congreve and Addison lying in state

in the same room before their interment in the Abbey so well described by Goldsmith as 'the place of sepulture for the philosophers, heroes, and kings of England'—and there was a general feeling of pride on the occasion of adding the remains of one of England's greatest medical philosophers to the dust of his fellows; especially as our profession is not rich in associations with Westminster Abbey. Mead, Friend, and Baillie—with the exception of Buchan, of 'Domestic Medicine' renown—were the only medical men, before Hunter, entombed within its precincts. When the service was over the procession was thus arranged, following the coffin, which was carried on a high bier: The Dean of Westminster; Mr. Baillie, a grand nephew of Hunter; the Earl of Ducie, and Dr. Clarke, of Cambridge, as trustees of the Hunterian Museum; Mr. Buckland and Professor Owen; the Presidents of the Colleges of Physicians and Surgeons, the Council and Professors of the College of Surgeons, the Censors of the College of Physicians, the Master and Warden of the Apothecaries' Company, the Presidents of several of the learned Societies, the Medical Officers of London and Provincial Hospitals, and many visitors. While the dead march in Saul resounded from the organ, the procession proceeded round the Abbey, through lines of spectators, and returned to a grave opened on the north side of the nave, near the western end. Here the coffin was lowered amid a great concourse, and many present obtained their first glimpse of it. It was extremely well preserved. On a brass plate, with the family arms, was inscribed, 'John Hunter, Esq., died 16th October, 1793, aged 64 years.' Beneath this plate the College had had another affixed, with the inscription, 'These remains were removed from the Church of St. Martin-in-the-Fields, by the Royal College of Surgeons of England, March 21st, 1859.' In opening the grave for Hunter, the bones of Ben Jonson were exposed, and a skull was freely handled about, said to be that of 'Rare Ben;' but we did not learn that the truth of the story of the poet being buried standing on his feet was confirmed. However this may be, the Poet and the great Surgeon, Physiologist, and Naturalist rest at last side by side, close to Gifford, who rescued Jonson's memory from unmerited obloquy, and another is added to the rich associations of our National Mausoleum. In its aisles and chapels sleep our kings and queens. Elizabeth in the same sepulchre with her victim the Scottish Mary; the descendants of Robert Bruce by the side of the first Edward; Pitt within a yard of Fox.]

"'How peaceful and how powerful is the grave
Which hushes all!'"

St. Luke's Hospital.—This new hospital, which has recently been erected in the upper part of the city, occupies the block between 54th and 55th streets, from 5th half way to 6th Avenue, within three blocks of the Central Park, and upon some of the highest ground on the island. This situation has been admirably chosen for the erection of a hospital, and the building itself, in its architectural beauty, is an ornament to the city. The hospital consists of a main building, and two wings, each 150 feet in length. It can accommodate 200 patients. The medical and surgical staff has recently been filled, and consists of the following gentlemen: *Attending Physicians*—Drs. Alonzo Clark, C. F. Heywood, T. G. Thomas and W. H. Draper; *Attending Surgeons*—Drs. Gurdon Buck, Geo. A. Peters and F. J. Bumstead; *Pathological Chemist*—Dr. John C. Dalton, Jr.; *Consulting Physicians*—Drs. Ed. Delafield, Geo. P. Cammann, Benj. Ogden and J. T. Metcalfe; *Consulting Surgeons*—Drs. Willard Parker, John Watson, A. C. Post and D. L. Eigenbrodt.

Officers of the New York Sanitary Association.—President—Frederick E. Mather; *First Vice-President*—John H. Griscom, M.D.; *Second Vice-President*—Robert B. Minturn; *Corresponding Secretary*—Elisha Harris, M.D.; *Recording Secretary*—C. R. Agnew, M.D.; *Treasurer*—Chas. M. Elliot. Members of the council are as fol-

lows: John Watson, M.D., Alfred C. Post, M.D., John Torrey, M.D., Peter Cooper, E. L. Viele, C. C. Savage, Joseph M. Smith, M.D., E. R. Peaslee, M.D., Stephen Smith, M.D., Wilson G. Hunt Prosper M. Wetmore and Benjamin R. Winthrop.

Quarantine and Sanitary Convention.—The third annual meeting of the *National Quarantine and Sanitary Convention* will be held in this city on Wednesday, the 27th inst., at 10 o'clock, A.M. It will be recollected that this annual gathering of representatives from Boards of Health and Medical Associations is the continuation and fruits of an effort that was put forth by the Philadelphia Board of Health in 1856–7. The first meeting was called by Dr. Jewell, president of that board, and convened at Philadelphia in May, 1857; the second convened last year at Baltimore.

New York Preparatory School of Medicine.—This school has been incorporated by an act of the legislature.

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